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ABSTRACT

A survey of various reform efforts was made to clarify the similarities and differences between them and efforts to integrate vocational and academic education. The survey revealed four distinct approaches to school reforms: (1) teacher professionalization; (2) curricular and teaching reform; (3) schools of choice; and (4) restructuring. According to the results of the survey, the most ambitious efforts at vocational and academic integration are attempts to reconstruct the high school. Elements required for reform efforts to succeed include the following: vision and commitment, consistent support from administrators and state officials, new resources--especially for release time and time for teachers to be together during the day, sustained effort, teacher training, teacher support, and shared power. (The report includes a list of 200 references, a 33-item bibliography, and 3 appendixes that discuss the 8 models for integrating vocational and academic education, teacher professionalism, and curricular and teaching reform.) (KC)

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MAKING HIGH SCHOOLS WORK: PATTERNS OF SCHOOL REFORM AND THE INTEGRATION OF VOCATIONAL AND ACADEMIC EDUCATION

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EXECUTIVE SUMMARY

Research by the National Center for Research in Vocational Education (NCRVE) has clarified that the integration of vocational and academic education is not only a way of reshaping vocational education but also an approach to reconstructing the high school for all students. However, there are numerous other reform movements now taking root in schools across the country, and an obvious question concerns how the efforts at integration are consistent with—or possibly inconsistent with—other reforms. To answer this question, we have surveyed various reform efforts to clarify the similarities and differences between them and efforts to integrate vocational and academic education. While this might seem to be a straightforward task, it has in fact proven to be quite difficult because—like the movement to integrate vocational and academic education itself—other reforms vary in their intentions, differ between their rhetoric and their practice, and are difficult to describe without extensive site visits.

The results do indicate some substantial similarities between some other reforms and integration efforts. Sometimes other reforms have neglected occupationally oriented content, but the structure of the reform is similar.

There appear to be four distinct approaches to school reforms. Although all reforms state their purpose as the improvement of student learning and achievement, they differ in their point of entry into the reform maze. The point of entry reveals their assumptions about what in our schools needs improving as well as what the sources of the problems are.

Within each of these approaches is yet another level of differentiation—the degree of change the particular approach advocates. In other words, just as there are many models for the integration of vocational and academic education, from marginal to more comprehensive and school-wide attempts, so too with school reform. Yet, despite the differences among the reform approaches, the examples of the most comprehensive efforts are very similar among themselves and to the eighth model (occupational clusters, "career paths," and occupational majors) in *"The Cunning Hand, the Cultured Mind": Models for Integrating Vocational and Academic Education* (Grubb, Davis, Lum, Plihal, & Morgaine, 1991). They are similar in terms of degree of change, philosophy of learning, roles of teacher and student, types of curricular changes, and overall beliefs in restructuring schools

away from the factory model/"shopping mall high school" design to a model of student and school accountability.

The four main school reform approaches are as follows:

1. *Teacher professionalization*

   Schools in this approach view teacher change as the linchpin of school change. Teacher change refers to retraining, induction, and transformation to professional status and professional design for the organization (professional accountability, autonomy and discretion, and client-centered orientation). Schools in this approach range from those simply implementing school-based management (SBM) to those reinventing schools around the ideas of the American Federation of Teachers' (AFT's) and the Holmes Group's Professional Practice Schools (PPSs), which are akin to teaching hospitals. All the examples of this approach, from the range of the spectrum, view bureaucratic norms and regulations as the villain.

2. *Curricular and teaching reform*

   Schools in this approach usually begin at the classroom level to redesign curriculum and instruction around a new philosophy of learning, one that departs from the pervasive practice in schools—the factory model version of knowledge—where students receive collections of decontextualized and decomposed bits of knowledge, skills and drills, and teacher talk. The new philosophy of learning is primarily based on the research findings of the cognitive scientists that advocate active, student-centered, project-driven methods that have been typical in the best vocational classrooms. In the most conservative examples within this approach, curricular integration may occur only within a single subject or across two subject areas while the rest of the high school remains fairly well intact (as with the Foxfire approach). In the more comprehensive examples such as the Coalition of Essential Schools (CES), Accelerated Schools, Transformational Outcomes Based Education, or the Comer Schools, the entire school is essentially redesigned around the new philosophy of learning. For this reason, these examples may also fit the description of a restructuring school in its most comprehensive form.

3. *Schools of choice*

   There are many conceptions of choice, ranging from school- and district-level (including intradistrict, interdistrict, and magnet plans) to state plans. Magnets have become popular for many reasons, including fostering racial desegregation, providing choice to parents and students, and developing "focus schools." While some magnets are not occupationally oriented, many are—and they provide the same opportunities for integrating vocational and academic education that single-occupation high schools do. As with most projects, purpose dictates design. Many magnet schools were created in the early eighties as part of the Emergency School Aid Act (ESAA). The language in this federal act recommended that magnet schools be *either* centers of curriculum specialty *or* instructional delivery (Haynes, 1983). As a consequence, many magnet schools seem not to combine specialized curriculum with progressive instructional delivery.

4. *Restructuring*

This is a relatively new conception of school change and one that means various things to various people. The term is used as a way of describing choice programs, of waiving regulations, of empowering teachers, of forming partnerships, of promoting higher order learning outcomes, and of instituting SBM. Despite this variation, supporters tend to agree that restructuring requires a fundamental rethinking of schooling to move the locus of control to the school level to create student/teacher-centered schools. This idea is no doubt in direct response to the failure of earlier reform attempts that were imposed from the outside. The implication of this belief is that no two schools will be "restructured" in the same way. Most schools in the process of restructuring, however, will make changes in the processes of learning and teaching, curriculum, accountability, school organization, and decision making to create a new paradigm (Lewis, 1989; National Governors' Association [NGA], 1991).

As with teacher professionalism and curricular upgrades, restructuring efforts vary in their point of entry because at its very heart, restructuring requires systemic change, school by school. Some restructuring efforts begin at the classroom level while others begin by removing the institutional barriers that have impeded reform efforts in the past. In either case, the notion of devolving more authority to the school level is consistent with practices in schools which have adopted various forms of vocational and academic integration and found that they need substantial local control to do so. This approach also includes examples of attempts to restructure schools through the vehicle of an outside lever such as technology, business partnerships, or assessment.

As with the most ambitious efforts at vocational and academic integration, the most ambitious school reform efforts are attempts to reconstruct the high school. Although they often lack an occupational focus, like many of the best integration examples, they rely on the same restructuring components described in *The Cunning Hand, the Cultured Mind* (Grubb et al., 1991) to reconstruct high schools around new conceptions of learning. Reform efforts include

- Eliminating the "shopping mall high school," where students are free to mill around, free to make choices that lack relevance to their future, free to make choices that lack personal meaning, and free to sample courses without making connections among them or a commitment to any particular occupational path (Powell, Farrar, & Cohen, 1985).

- Replacing the shopping mall high school with the infrastructure of a "focus school" (Hill, Foster, & Gendler, 1990)—attention to student outcomes; strong social contracts that communicate reciprocal responsibilities of administrators, students, and teachers; centripetal curricula; problem-solving organizational focus; and accountability to the people who depend on individuals' performances.

- Enhancing student engagement by replacing conventional teacher-centered instruction with more activity-based, project-oriented, student-centered, and contextualized methods. This reflects a change in philosophy about learning from a behaviorist interpretation to a cognitive science orientation, which has been a common component of the best vocational classes for years.

- Reducing the isolation of teachers by creating new opportunities, expectations, and school infrastructures.

- Reducing the tracking and segregation of students by creating more homogeneous groupings.

As with the efforts to integrate vocational and academic education, perhaps the most crucial element is the implementation process. In both cases, certain elements are required to succeed. Among the most important are the following:

- Vision and commitment. A common vision helps align the efforts of everyone in the school toward consensual ends and as a byproduct reduces resistance among the nonbelievers who find themselves at odds with the norms and goals established by their colleagues. It is best if teachers initiate the change; commitment depends on dissatisfaction with the status quo in order to motivate teachers to find a new goal that is both desirable and feasible. A satisfactory solution, in turn, depends on the content, context, and process of the goal (Evans, 1992).

- Consistent support from administrators and state officials, usually in the form of waivers of district and state regulations. In addition, the personality of the leadership parties has proven to be a crucial ingredient of successful implementation. Learning is most inspired in an organizational infrastructure which emphasizes development, experimentation and problem solving, and teacher participation, where the leader is a symbol of the legitimacy of this culture (Berman & McLaughlin, 1978).

- New resources, especially for release time and time for teachers to be together during the work day. Collegial support seems to be a main ingredient in working through the value conflicts inherent in schools, in building support and eliminating sabotage, and in moving people over the "implementation dip."

- Sustained efforts. Most schools expect school redesign to take at least five years from planning to implementation. In addition, individuals within the school need to proceed at their own developmental pace in adopting the change because change is personal before it is institutional.

- Teacher training, especially in the new roles teachers are expected to assume as professionals. This includes training on process issues such as team building, reaching consensus, conflict management, and the technical responsibilities of teachers' new roles. Long-term learning is enhanced through follow-up procedures such as observation, follow-up meetings, and coaching (Little, Gerritz, Stern, Guthrie, Kirst, & Marsh, 1987).

- Teacher support—in the form of networks, release time, exposure to other reform efforts, and conferences.

- A critical mass of teacher advocates within the school to get the reform moving and ensure implementation.

- Ownership, usually in the form of shared power.

There are other areas of agreement between the effort to integrate vocational and academic education and school reform in addition to the above similarities. In general, the most comprehensive examples of each movement share a belief in curricular integration, a common curriculum for all students, a meaning-making pedagogy, and an environment of professional collaboration. Given these similarities, it is not surprising to see reform examples converging and joining forces. For example, Hodgson Vocational Technical High School in Delaware is both an example of a school working to integrate vocational and academic curriculum and a member of CES. California has just published a high school task force report that advocates a "model" remarkably similar to model eight (schools with occupational paths) in *The Cunning Hand, the Cultured Mind* (Grubb et al., 1991) and also claims to have been influenced by CES. At the same time, in the push to provide all students with the common curriculum, there are fewer efforts that describe the integration of vocational education with academic skills as a possible solution. Consequently, few of the reform examples seem to be including connections with the outside world, as is common with the vocational and academic integration efforts.

For future NCRVE work, there are both political and substantive purposes for continuing to learn about related reforms. The political purpose is that it may be easier to get schools to integrate if similarities to other "hot" reforms are clarified. In addition, it may be easier to persuade the academic side about the validity of integration if they can see it related to other, academically respectable reform efforts. The substantive purpose is that the processes of implementing reforms are similar; we can learn from the experiences of others.

TABLE OF CONTENTS

Executive Summary i

Introduction 1

- The Nature of Wave Two Reforms 2
- The Role of Reforms in Vocational Education 6

Teacher Professionalization 9

- Example One: School-Based Management 10
- Example Two: Professional Development Centers 16
- Example Three: Professional Practice Schools 17
- Example Four: School-University Partnerships 20
- The Relationship to Changes in Vocational Education 21

Curricular and Teaching Reform 21

- Example One: Curricular Integration Efforts 24
- Example Two: Comprehensive Curricular and Teaching Reform 27
- Connections to the Integration of Vocational and Academic Education 52

Schools of Choice 54

- Voucher Mechanisms 55
- Interdistrict Choice 55
- Intradistrict Choice 56
- Connections to the Integration of Vocational and Academic Education 66

Restructuring 67

- Example One: Restructuring Schools 68
- Example Two: Restructuring with a Focus on the School-to-Work Transition... 79
- Example Three: Restructuring with School-Business Partnerships 83
- Example Four: Restructuring through the Leverage of Technology 88
- Example Five: Restructuring through Assessment 90
- Connections to the Integration of Vocational and Academic Education 91

Conclusion: School Reform and the Integration of Vocational and Academic Education 92

- The Relation between Secondary School Reforms and the Integration of Vocational and Academic Education 94

References 99

Bibliography 119

Appendix A: The Eight Models of Integrating Vocational and Academic Education 123

Appendix B: Teacher Professionalism 127

Appendix C: Curricular and Teaching Reform 139

INTRODUCTION

American schools have always been susceptible to reform by commissions. As one of the few ways to move the great, sprawling variety of schools with their traditions of local control and their locally developed purposes and cultures, the high-profile commission with its exposé of educational weaknesses and its call for reform has been a feature of the landscape for at least a century (Cuban, 1990).

So it has been over the past decade. *A Nation at Risk* (Commission on Excellence in Education, 1983) triggered a "first wave" of reform when it blamed schools for the declining economy and weakening national security. In response to this report, many other commissions issued their interpretation of the problem. The Education Commission of the States (ECS) (1991) estimated that there were three-hundred task forces at work throughout the country during the 1980s, representing a diverse cross-section of the population, including citizens, parents, teachers, administrators, business and community leaders, elected and appointed public officials, and university professors. Even amidst this diversity, there were a number of common themes among the reports (Passow, 1989). We needed a restoration of educational excellence, higher standards, and equity for all to stem the "rising tide of mediocrity." To raise standards, a common core curriculum was needed for all students.[1]

Equity and excellence were two other common themes of the first wave. Task force committees called for the elimination of tracking, lengthening of the school year, and the recruitment and retention of more academically able teachers. The states responded to these goals with sweeping legislation. By 1986, the following changes had occurred: (1) forty-five states changed graduation requirements; (2) forty-two states increased math requirements; (3) thirty-four states changed science requirements; (4) eighteen states modified language arts requirements, and (5) most states began reassessing the structure of the teaching profession, including credentialing and the compensation of good teachers (Passow, 1989).[2]

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[1] This idea marked a return to an earlier idea, first presented by the Committee of Ten in 1892. The humanists, headed by Charles Eliot, believed Americans underestimated the capacity of students. He believed that all students should be taught the same curriculum in the same way. As the century progressed and competing ideas about the purpose of schooling challenged the humanists' ideas, the Committee of Ten became a symbol of the failure of the schools to react to the changing population (Kliebard, 1986). Despite this history, the first wave has returned to the ideas of high standards and a common core curriculum for all. Some have drawn on the ideas of John Dewey, who believed that the objectives of schooling should be the same for all, for to have anything other than this is to say, "Yes, we have equal access to education, but only some of the students are educable" (Adler, 1982a).

But after the first wave, many were not convinced. The legislative mandates seemed to imply that student achievement would increase simply by demanding excellence and providing equity in the curricular requirements. Some argued that the first wave did not address the significant problems of the schools such as equity in outcomes, the quality of education, or the needs of the disadvantaged and special populations. It was simply the period of "more of the same"—more courses, more requirements, more tests, more teacher requirements, and more money for teacher salaries (Anrig, 1992). And it was all attempted with a top-down approach—legislative mandates, detailed rules, standards, and requirements that could only bring limited changes; they could not affect the classroom level or tackle the more significant problems (Passow, 1989). David Cohen (1989) found that some teachers reoriented their instruction to tests; at the same time, he found teachers who rarely took tests into account. He also studied the effect of competency tests on student learning retention and again found contradictory results.

The Nature of Wave Two Reforms

The late eighties ushered in a "second wave" of school reform. This wave began as a rebuttal to prescriptive legislation and a deluge of reports and studies of the early eighties that failed to create the desired "excellence" in schools. As early as 1984, Cross (1984) had predicted this outcome:

> The curriculum will be tidied up, goals will be articulated, standardized tests will control transactions from one level of schooling to another, prospective teachers will study a core of common learnings, and the teacher education curriculum will be restructured to include certain experiences in specified sequences. There is not much evidence that the current mania for tidiness

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[2] In California, SB813, which included eighty provisions and an $800 million budget, was passed. One such provision was state-mandated, model curriculum standards. According to a Policy Analysis for California Education (PACE) study of seventeen California high schools (Little et al., 1987), (1) all schools changed their graduation standards; (2) two-thirds followed the model curriculum standards; (3) all schools created academic advising for all sophomores; (4) a majority of schools purchased new and more rigorous texts; (5) all schools scheduled longer school days; and (6) average scores in the California Assessment Program (CAP) test in the sample schools increased more than statewide averages. Unfortunately, at the same time, the dropout rate went up. According to the PACE study, top-down legislation created some positive results despite the increase in the dropout rate. Others argued that SB813 created only superficial changes, referring to it as a "band-aid," a "furniture move," or a "repainting job" (Chance, 1989).

> will produce orderly schools in which students and teachers pursue learning with the contagious enthusiasm that is so essential for excellence. (p. 69)

The second wave marked the end of belief in the "one best system" (Tyack, 1974) and in reform by tidying up or tinkering and the beginning of educational change school by school.

As a result, the second wave of reform includes an abundance of reforms, often defining themselves as "restructuring"—that is, creating systemic change. The second wave has also been noteworthy for its efforts to create change at the local level and within the classroom—a result of skepticism that mandates can transform schools and create desired student outcomes. As Goodlad (1987) has said, "[M]andating ways to improve pupil achievement is at best futile and at worst dangerous, especially as we come to know more about such phenomena" (p. 9).

Most second wave reform proposals describe "restructuring" as their purpose. Unfortunately, "restructuring" is a fuzzy concept used in different ways by different people. Furthermore, there is no real agreement on the best starting point for beginning restructuring; that depends on who or what is picked as the main victim of school bureaucracies and therefore on whose "empowerment" will lead to the solution. Furthermore, restructuring advocates the creation of unique schools designed around student needs and learning principles.

The first problem with the current wave of reforms, then, is that they are by turn so varied and often so imprecise that it is often difficult to understand what they are trying to accomplish. Our first mission in this report is therefore to clarify the nature of current reforms, to categorize them in order to appreciate the similarities that underlie many of them, and to describe them in enough detail that those bewildered by the plethora of changes can understand the variation within any particular approach to reform.

One way to describe these reforms is to examine how ambitious each is. Larry Cuban (1988) has classified change as first and second order. First-order change accepts the existing goals and structures of a system and attempts to correct only the deficiencies in achieving those goals. Many of the wave one reforms—such as recruiting better teachers, selecting better textbooks, or increasing staff development days—are examples of first-order change. Second-order change challenges assumptions, goals, and routines and therefore is akin to redesigning a system. Dividing the second wave reforms into these two categories is a way to make distinctions among the different approaches and is a way to distinguish reforms which simply add new elements to a school which is otherwise fundamentally unchanged from those which attempt to remake the shopping mall high school.

Another way to describe current reforms is to categorize them according to their basic approach, defined by their diagnosis of what has gone wrong with the schools, the changes in roles and relationships within the school they seek to make, the method of change they stress, and their philosophy of learning. In our interpretation of reforms, there are the following four main approaches to school reform:

1. *Teacher professionalization*
   Schools in this approach view teacher change as the linchpin of school change. Teacher change refers to retraining, induction, and the transformation to professional status and professional design for the organization (professional accountability, autonomy and discretion, and client-centered orientation). Schools in this approach range from those simply implementing school-based management (SBM) to those reinventing schools around the ideas of AFT's and the Holmes Group's Professional Practice Schools (PPSs), which are akin to teaching hospitals. All the examples in this approach, from the range of the spectrum, view bureaucratic norms and regulations as the villain.

2. *Curricular and teaching reform*
   Schools in this approach usually begin at the classroom level to redesign curriculum and instruction around a new philosophy of learning, one that departs from the pervasive practice in schools—the factory model version of knowledge—where students receive collections of decontextualized and decomposed bits of knowledge, skills and drills, and teacher talk. The new philosophy of learning is primarily based on the research findings of cognitive scientists that advocate active, student-centered, project-driven methods—methods that have been typical in the best vocational classrooms. In the most conservative examples within this approach, curricular integration may occur only within a single subject or across two subject areas while the rest of the high school remains fairly well intact (as with the Foxfire approach). In the more comprehensive examples, such as Coalition of Essential Schools (CES), Accelerated Schools, Transformational Outcomes-Based

Education, or the Comer Schools, the entire school is essentially redesigned around the new philosophy of learning. For this reason, these examples may also best fit the description of a restructuring school in its most comprehensive form.

3. *Schools of choice*

   There are many conceptions of choice, ranging from school- and district-level (including interdistrict, intradistrict, and magnet plans) to state plans. Magnets have become popular for many reasons, including fostering racial desegregation, providing choice to parents and students, and developing "focus schools." While some magnets are not occupationally oriented, many are—and provide the same opportunities for integrating vocational and academic education that single-occupation high schools do. As with most projects, purpose dictates design. Many magnet schools were created in the early eighties as part of the Emergency School Aid Act (ESAA). The language in this federal act recommended that magnet schools be *either* centers of curriculum specialty *or* instructional delivery. As a consequence, many magnet schools seem not to combine specialized curriculum with progressive instructional delivery.

4. *Restructuring*

   This is a relatively new conception of school change and one that means various things to various people. The term is used as a way of describing choice programs, of waiving regulations, of empowering teachers, of forming partnerships, of promoting higher order learning outcomes, and of instituting SBM. Despite this variation, supporters tend to agree that restructuring requires a fundamental rethinking of schooling to move the locus of control to the school level in order to create student/teacher-centered schools. This idea is no doubt in direct response to the failure of earlier reform attempts that were imposed from the outside. The implication of this belief is that no two schools will be "restructured" in the same way. Most schools in the process of restructuring, however, will make changes in the processes of learning and teaching, curriculum, accountability, school organization, and decision making to create a new paradigm (Lewis, 1989; National Governors' Association [NGA], 1991).

As with approaches one and two, restructuring efforts differ in their point of entry because at its heart, restructuring requires systemic change, school by school. Some restructuring efforts begin at the classroom level while others begin by removing the institutional barriers that have impeded reform efforts in the past. In either case, the notion of devolving more authority to the school level is consistent with practices in schools which have adopted various forms of vocational and academic integration and found that they need substantial local control to do so. This approach also includes examples of attempts to restructure schools through the vehicle of an outside lever such as technology, business partnerships, and assessment.

This categorization is not meant to imply that the examples fit neatly into one of the four approaches. In fact, many schools are attempting several reforms simultaneously. This makes it difficult to assess the effectiveness of a reform as well as create categorization among the myriad of reforms. In addition, many examples within the approaches are beginning to join forces as they come to understand their philosophical points of agreement. As a consequence, various terms may be used to discuss the same concepts. Second, despite the new standards movement, in many cases restructured assessment procedures are lagging behind school improvements. As a consequence, schools are still relying on standardized assessments which may not adequately reflect student growth in a school operating with a new knowledge paradigm. Third, it is difficult to know whether reforms being implemented conform to the rigors of their creators. This report is based solely on informational research. Visiting schools may present an even messier description and blur distinctions further.

The Role of Reforms in Vocational Education

At the same time that these four kinds of reform have been taking place, a different approach to change has begun to influence vocational education—the effort to integrate vocational and academic education. Born of various sources of support which have found the century-old division between vocational and academic education no longer effective, these efforts at integration—like other reform efforts—have taken many forms. Elsewhere, we have described eight models or approaches to integrating vocational and academic education (Grubb et al., 1991, hereafter referred to as *The Cunning Hand, the Cultured Mind*), some of them examples of first-order change but several of them capable of fundamentally reshaping the high school. (These eight models are briefly described in Appendix A.)

Unfortunately, like much else that takes place in vocational education, these reforms have been peripheral to those taking place in "mainstream" academic education. Just as vocational education itself has been marginalized—because of its lower status in high schools where college preparation has always defined the norms, because of its reputation as a "dumping ground," and because of its reputation for anti-intellectualism in a period when academic standards have become a Holy Grail—the efforts to integrate vocational and academic education have been confined largely to vocational programs rather than spreading to the mainstream reform movements.

However, this continued division between reforms taking place in academic education and those in vocational education highlights an important problem. The high school has become inescapably vocational: Most students report they are there for essentially vocational purposes since the lack of a high school diploma dooms an individual to a lifetime of unskilled, poorly paid work. For those students who plan to attend college, high school is a necessary step before entering yet another education which has an essentially vocational purpose. As the differences in earnings among high school dropouts, graduates, and those with various postsecondary credentials have increased during the 1980s, so have the consequences of decisions about how far to go in school. In addition, other choices during high school—whether to take math or science, whether to take college prep subjects or the general-track equivalents, whether to work for good grades—open and foreclose occupational options, often irreversibly.

Yet, while the high school has become an inescapably vocational institution, its occupational purpose is largely hidden from students. Most adolescents seem not to understand how their schooling decisions affect their future careers; since career counseling has all but vanished from most high schools, there may be no one to tell them. They do not understand how the content of their classes is related to what employers will ask of them. Enrollments in traditional vocational education are dwindling, and graduation requirements have emphasized the academic side more and more; high schools certainly are no longer in the business of preparing youth for specific occupations. These developments have opened up a paradox: Even as the high school has become increasingly crucial to occupational futures, most students regard it as an "academic" exercise. Furthermore, most of the current reforms also view the high school as an essentially academic exercise since they continue to emphasize the traditional academic curriculum—even if they stress new ways of integrating old subjects and new ways of teaching. Indeed, some of these reforms—

notably CES with its attempt to pare the high school down to an essential core of learning—have treated any occupationally oriented content as a distraction from their central purposes.

The division between reforms in the mainstream of education and the efforts to integrate vocational and academic education—paralleling the historical division between vocational and academic education—are unfortunate in our view. The efforts to integrate vocational and academic education have much to offer. The more thorough of these reforms offer ways of reforming the high school that simultaneously highlight its occupational relevance and address its most serious failings. In the current concern with developing new approaches to teaching, vocational education offers a philosophy of teaching—more student-centered; more project-based, relying more on cooperative learning groups and less on individual work; and in many ways requiring more active participation from students—that is similar to many other efforts to reshape instruction. In the current drive to "contextualize" teaching—to teach academic subjects in the context of their applications—occupational applications provide one way to contextualize that simultaneously clarifies to students why learning academic material is crucial to their futures. Certain models of integrating vocational and academic education provide one way of reforming high schools—not the only way, to be sure, but a way that acknowledges rather than obfuscates the occupational role of the high school.

Conversely, several mainstream reforms have important implications for the efforts to integrate vocational and academic education. They clarify, for example, the importance of teacher professionalism and outline ways of making teachers more independent. They highlight the importance (as well as the difficulty) of teachers developing their own curricula, rather than taking materials "off the shelf"; they indicate the problems any thorough reform has in making its way into the schools. They also highlight the importance of local decision making and the new roles and responsibilities of all school members. Each arena of reform has something to learn from the others, then, and the current segregation of academic reforms from those taking place in vocational education should end.

The second major purpose of this report, then, is to clarify the relationships between the reform movements in academic education and the current efforts to integrate vocational and academic education. When we summarize these connections in the

"Conclusion" section, it will become clear how much all these approaches to reform have in common. In addition, it will become clear how various elements of reform support one another with, for example, efforts to change teaching methods (whether in occupationally oriented programs or conventional academic subjects) depending on teachers becoming more independent professionals and with efforts to focus schools around occupational topics requiring the local autonomy that is at the heart of restructuring.

In the stew of changes now taking place, the trick will be to combine the various possible elements in ways that support one another, that create consistent and coherent reforms. The promise of the second wave of changes is that this time around, they will reshape high schools in fundamental and constructive ways with the hope that education can escape from the endless cycle of commission reports and reforming again and again and again.

TEACHER PROFESSIONALIZATION

At the heart of the teacher professionalization approach to reform are several beliefs. First, improved student achievement depends on improved teaching and an improved teacher workforce (David, 1991b; Gheens Academy, 1991; Rochester City School District, 1989). An improved teacher force in turn depends on improved workplace conditions, preparation, and an expanded definition of the teacher role. Second, the creation of effective schools depends on a decentralized form of governance and mode of operation so that teachers gain a sense of personal responsibility for student performance (Hill & Bonan, 1991). Third, better decisions about students should be made at the local level, particularly by teachers who are closest to students and "know" better (Darling-Hammond, 1988).

Ernest Boyer, President of the Carnegie Foundation, in the foundation's report on *The Conditions of Teaching Report* declared,

> [T]he conclusion is clear, improved working conditions are essential if we hope to attract and hold outstanding teachers. They must be regarded as professionals, consider themselves professionals and be treated as professionals. (quoted in Fiske, 1991, p. 255)

Other proponents of teacher professionalization point to the inappropriateness of a bureaucratic model for schools because of its tendency to foster equal and uniform treatment of clients and standardization of services. Yet, they also acknowledge that it prevents capricious decision making. The bureaucratic model assumes students are sufficiently standardized and that knowledge can be translated into standardized rules for practice. Teachers are viewed as functionaries rather than well-trained and independent professionals because practices are set by those outside the school setting, thereby eliminating any room or need for professional discretion. Accordingly, accountability is achieved through inspection and reporting mechanisms to ensure that rules and procedures are being followed. As a consequence, teachers are accountable for delivery of instruction only and not student outcomes (Darling-Hammond, 1988).

Bureaucratic ills demand a realignment of the teaching profession with the expectations held for other professionals: a systematic knowledge base, the presence of a collegial structure, a standard of ethics to guide practice, a systematic induction into the profession, and professional accountability where the first concern is welfare of the students. An institution designed to support these features would make teachers the ultimate authorities; promote collegiality to permit opportunities for ongoing communication, reflective practice, joint planning, and peer review; and develop professional accountability whereby teachers are responsible to each other for student outcomes (Levine & Gendler, 1988).

Example One: School-Based Management

School-based management (SBM) has many different labels. It has been referred to as school-site autonomy, school-site management, school-centered management, decentralized management, school-based budgeting, and shared governance (Clune & White, 1988). More important than the label is the manner in which SBM is organized and operates, the type of decision making, and the degree of school acceptance of collective decision making. These features tend to differ by school. In addition, there is disagreement over whether SBM is synonymous with restructuring or is a reform limited to expanded teacher roles. According to researcher Jane David (1989), SBM and restructuring are different. SBM is simply a mechanism for moving the center of decision making from the district office to the school site, where restructuring involves redesigning all elements of the school system, including moving the decision-making structure to the school level.

Ann Lieberman, in the National Center for Restructuring Education, Schools, and Training (NCREST) study of the New York City Teacher Center Consortium shared decision-making project, argues that restructuring occurs through the vehicle of shared decision making. There are working examples of SBM that fit both interpretations of the term. Some approaches do not involve teachers in meaningful decision making, and the principal remains the site leader, leaving the hierarchy of schools intact. Other approaches are beginning to make and implement decisions that change organization, operation, and instruction (Lieberman, Darling-Hammond, & Zuckerman, 1992).

There are competing rationales for SBM. The most common is that the closer a decision is made to those it will effect, the better it is likely to be (Clune & White, 1988). Others view SBM as the solution to everything from achieving desegregation to enhancing teaching as a profession, as an extension of "choice," and as a vehicle for improving gains in student achievement (Rosenberg, 1989). Furthermore, schools attempt reform through SBM for a variety of reasons: superintendent's suggestion, union contract, school board imposition, pilot efforts, or business community encouragement (Fiske, 1991; Hill & Bonan, 1991).

Despite the belief that decisions made by the professionals closest to students will result in better decisions, most schools with SBM have decentralized authority and opened up teacher discretionary power to only three types of decisions: (1) budget, (2) curriculum, and (3) personnel (Clune & White, 1988). Most schools begin implementing SBM with decision making over budget issues. Often, this focus on copy machines and other seemingly trivial issues gives SBM a bad name. Some districts have fewer limitations on the types of decisions. In Los Angeles, for example, the teacher contract delineates shared decision making in the areas of staff development, student discipline, scheduling, use of school equipment, and some discretionary spending (Fiske, 1991).

Almost all major districts have several (if not all) schools experimenting with SBM. Schools with SBM generally establish one or more committees, typically called school advisory councils, consisting of teachers, administrators, parents, and sometimes student members. Proposals differ, however, on whether the council is merely an advisor to the principal or a decision-making body (Raywid, 1991). In this case, SBM is not synonymous with shared decision making. (See Appendix B for a detailed example of SBM in Chicago, Illinois, and Rochester, New York.)

The majority of SBM currently practiced in the schools appears to qualify as first-order change. Typically, the degree of change is marginal. According to a 1991 study of two hundred SBM programs around the country, school advisory councils rarely address salient policy issues. Second, participation on the school advisory councils rarely replaces traditional norms with new norms of collegiality and shared professionalism. Third, in some schools, districts, and states, requirements were viewed as so extensive and confining that school participants focused more on compliance to regulations than on devising school improvement (Malen, Ogawa, & Kranz, 1991).

However, there are a few examples of schools attempting to make second-order change (changes which challenge assumptions, goals, and routines) through SBM. In the NCREST study of New York City schools, all twelve schools studied in the first two years of SBM implementation have been able to create a "solid collaborative structure." In addition, many schools have begun to initiate school- or classroom-level changes that may lead to the creation of better learning environments. They have introduced collegial lesson planning and team teaching, teacher voice in textbook selection, the development of in-house suspension policies, and the introduction of the whole language approach to literature (Lieberman et al., 1992). Dade County, Florida; Jefferson County, Kentucky; and possibly Rochester, New York, also seem to be making progress with second-order changes perhaps because they have coupled SBM plans with other reform strategies. For this reason, both Dade and Jefferson Counties will be discussed later in this section as examples of comprehensive teacher professionalism.

In addition to these illustrations, an advantage of SBM is that many teachers report increased morale, especially at the onset of SBM (Malen et al., 1991). Teachers who participate in advisory councils often claim they feel more professional. SBM can create role changes for teachers and administrators and it may in fact reduce teacher isolation. Still, a question remains: Do happy teachers make better teachers? We do not know—but Fiske (1991) provides a caution: SBM "is clearly no panacea—its significance for overhauling education is not the guarantee of success, but that it will make success possible" (p. 61).

On the other hand, the NCREST study raises a number of issues and potential drawbacks of SBM. First, for SBM to succeed, school members need to learn communication, collaboration, and conflict-resolution techniques to resolve inevitable disagreements. Facilitators are necessary to teach the staff how to relate to one another. Second, SBM teams must guard against isolating themselves from the rest of the school; they need to work constantly at improving their relationships with the rest of the staff. Third, process is as important as the content of the work in SBM. Fourth, in order to get SBM accepted by teachers, it is helpful to have a manageable initial project that includes wide involvement and visible and concrete results. Fifth, state policies and practices can have a divisive effect on the success or failure of SBM (Hill & Bonan, 1991). In addition, if SBM is to have any serious impact on learning, schools must have the cooperation of the school board and district office; board members cannot keep throwing new innovations and regulations at the school. Hill and Bonan also argue that SBM should not be one of many uncoordinated reforms but rather the sole focus of the schools' energy because given the time and freedom from bureaucratic constraints, SBM schools can develop their own characteristics like "focus schools."

Two other examples may provide the same opportunity for creating a fertile infrastructure for reforms that depend on teacher collaboration: the Effective Schools (ES) model and total quality management (TQM). Both of these examples may work as a framework for integrating SBM with other reform efforts to increase the merits and effectiveness of decentralization.

The ES movement began in the 1970s in response to the 1965 Coleman Report, which concluded that schools had little impact compared to the influence of a student's background and family. This finding has often been misinterpreted to mean that schools make little difference in student outcomes (Johnstone, 1989). In response, research on effective schools by Ron Edmonds (1978) and others documented organizational characteristics and instructional practices in schools where test scores disaggregated by race or socioeconomic status were above average. From these studies, Edmonds developed a list of five "correlates" of effective schools that promote both equity and excellence in schools: (1) leadership of the principal, characterized by substantial attention to the quality of instruction; (2) pervasive and broadly understood instructional focus; (3) orderly, safe climate conducive to teaching and learning; (4) teacher behaviors that convey the expectation that all students are to obtain at least minimum mastery; and (5) use of measure of achievement as the basis for the program evaluation.

Since its creation, many schools have implemented the ES model. It is estimated that fifty-eight percent of all school districts have "effective schools programs." In addition, ES as a model was included in the Hawkins/Stafford Elementary and Secondary School Improvement Amendments of 1988 (Committee on Education and Labor, 1988). It is also estimated that only twelve percent of ES are disaggregating the achievement data to ascertain relative success of the student population subsets. This lack of attention to the goal of equity has been reinforced as an important goal in the second phase of the ES movement (Holcomb & Peterson, 1991). In addition, many ES efforts have stopped short of comprehensive change because they have limited themselves to assessment issues and the development of correlates. However, many ES programs have included a close examination of curriculum, instructional strategies, and assessment. Some schools have confused the correlates as the goals rather than as means to the goals (Holcomb & Peterson, 1991).

The ES movement, now in its second phase, has made some changes in the original model. First, two other correlates have been added: the effort to strengthen home-school relations and the attempt to allocate more time to academic study. The model has also been expanded. In the first phase, the ES model for school improvement essentially entailed individual school-level teams of teachers and administrators (now called SBM). Together they would develop a school improvement plan based on a needs assessment that contained a mission, goals, and activities to reach the goals. The plan would be put into place and monitored through some assessment procedures, often standardized tests (some schools used action research or interviews). The ES movement was essentially a data driven school improvement plan designed, implemented, and monitored by teams at the site.

The second phase has been spearheaded by the National Center for Effective Schools Research and Development (NCESRD). Dedicated to the dissemination of knowledge, research, and training, NCESRD has expanded the focus of ESs to include *how* to create or transform the school through systemic change. Programs at NCESRD have tried to fill in where the ES movement's phase one left off: organizational issues of decentralizing structure, dispersing leadership and empowering others, and fostering a school culture supportive of success. The changes in the governance structure of the ES model have been picked up as a major restructuring theme. Because the second phase focuses primarily on process, it functions as a framework with which to integrate other reforms. In this way, implementation of the ES model can be a way to enrich SBM.

TQM, like the ES movement, is a framework for school improvement that can broaden SBM, providing it with a cohesion to transform schools through a philosophy, sophisticated tools, and decision-making techniques. Like SBM, this model was also taken from business practice. TQM was developed by Deming (1988) who used it first to help Japanese industry after World War II. Now, many American businesses and school districts are implementing it, too.

TQM is a holistic management model to manage systemic change. It begins with the assumption that all people naturally want to do well at their job, contribute, and experience pride and joy in their work. When problems arise, the fault lies not with workers but with the system; it is the management's responsibility to ensure that all parts are working together toward a common vision. A quality system requires the advice and expertise of workers, who are the best source of ideas for improvement. Deming (1988) also believes in a strong focus on customer satisfaction, doing things right the first time, top-level leadership, greater investments in employee education and training, and constant improvements in products and services—achieved by familiarizing employees with statistical tools and decision-making techniques and then empowering them to make changes.

At the school level, TQM is being used in many ways. Pinellas County School District in Florida implemented TQM as an approach to help schools make decisions based on data, to force everyone to focus more on student need, and to help create a tighter link between one part of the system and another (Olson, 1992b). In Mount Edgecombe High School, Alaska, students used statistical techniques to unveil how teachers spent their time. They discovered that most of the time was spent lecturing, even though the teachers thought they were promoting active learning. The data has since lead the teachers to give shorter lectures and use more hands-on techniques. Classes have also been rescheduled from seven, fifty minute periods to four, ninety minute periods (Olson, 1992d).

In another example, Phil Schlecty (creator of Kentucky's Gheens Academy and now the creator of the Center for Leadership and School Reform) is working with five schools districts (Cedar Rapids, Hammond, Lake Washington, Tupelo, and Ventura) on systemic restructuring. Schools must be committed to the belief that schools should be organized around student work and not the world of teachers. Schools are expected to develop a procedure for creating a network of "standard-bearer" schools within the district to signify the direction of the reform. They must also educate the community, see teachers as leaders, use the techniques of TQM, and view students as the primary customer. This effort is so new that it is too early to tell the outcome, but it appears to be a new way of organizing systemic change around decentralization. TQM gives the school a focus and a way to improve, as with the ES model (Olson, 1992e).

Example Two: Professional Development Centers

Professional development centers are district-sponsored teacher academies that provide teachers with additional training. Whereas a goal of SBM is professional discretion (and in the case of Rochester, professional accountability), the concern of professional development centers is the knowledge base of teacher professionals. Examples include Schenley in Pittsburgh, Dade Academy of the Teaching Arts (DATA), and Gheens Academy in Jefferson County, Kentucky. (See Appendix B for details.)

In traditional staff development, the district office most often determines the staff development needs, content, and presentation in order to fix teachers' so-called "deficits" (Little, 1989). Not surprisingly, typical staff development efforts have an unfavorable record for producing substantial changes in teacher effectiveness (Little et al., 1987). It is difficult to know what has hindered the success of traditional staff development most—the skill deficit interpretation of teachers; the lack of evaluation of the process or outcomes; or the short-term, service-delivery approach.

Professional development centers are a reaction to the traditional model emphasizing teacher professionalism rather than deficits. DATA describes its intent as to "energize, revitalize and enhance the *professionalization* [italics added] of teachers" (Bureau of Professionalization, 1990, p. 3). Centers are places where teachers can receive long-term training as opposed to one-shot injections, where teachers can decide the type and degree of training they need, and where teachers can go to think deeply about teaching and learning in their classrooms. Perhaps most importantly, they are places teachers can go to meet colleagues and to work together on personal and individual school needs.

At both Schenley and DATA, teachers take sabbaticals from their schools—six weeks for Schenley and eight for DATA. During sabbaticals, teachers learn effective teaching techniques. For Schenley, this means instruction based on Madeline Hunter's PRISM program; for DATA, this means instruction in critical thinking skills, educational technology, gender disparity, and motivational techniques for a changing society. At both sites, teachers are observed by the professional development center instructors (exemplary teachers from the district) as teachers learn new techniques. In addition, Schenley teachers are required to complete an action research project related to their school site (Wallace, Young, Johnston, LeMahieu, & Bickel, 1984). The DATA teachers are encouraged to complete a project also, but it is not mandatory. Gheens Academy, by comparison, is a year-round teacher and administrator training center as opposed to an academy for month-long teacher sabbaticals. Teachers and administrators are welcome to use the academy at their discretion to meet a variety of needs. In addition to teacher and administrator training, Gheens offers a range of programs and weekly groups on such topics as SBM, performance assessment, and the Coalition of Essential Schools (CES).

By themselves, these academies might be nothing more than a new and improved model of professional development. But these academies act as the hub in each of the district's school reform plans. The districts are in the process of restructuring to improve student outcomes. The components of restructuring (e.g., classrooms organized around student-centered instruction, SBM, interdisciplinary teaming, and performance-based assessment) depend on expanded teacher roles and responsibilities that in turn, depend on teacher academies to provide the necessary professional development time. Therefore, teacher academies make restructuring in schools possible. The academies, coupled with larger district reform efforts, are creating teachers who are redesigning schools.

Example Three: Professional Practice Schools

Professional Practice Schools (PPSs) attempt to solve two basic problems in education: (1) how to restructure schools to support student learning or how to create schools as centers of inquiry and (2) how to professionalize teaching. PPSs were developed by the AFT and the Holmes Group. In the PPS approach, schools become places that provide instructional support for teachers: new teacher induction under the supervision of professionals, ethical standards, norms of collegiality, and the use and generation of a professional knowledge base (Levine & Gendler, 1988).

PPSs are to teachers and schools what teaching hospitals are to residents. Universities and schools agree to collaborate in the goal of creating teaching professionals and a new paradigm for schools—schools organized around student-centered instruction operated by reflective, professional practitioners who hold themselves accountable for new teacher induction, action research to improve schools, collegial interaction, observation, and reflection of teaching as a traditionally unexamined practice. In order to create this new paradigm, schools need to have certain characteristics similar to those of other comprehensive reforms and "focus schools" (Hill, Foster, & Gendler, 1990): a shared mission, flexibility in the organization of instruction, accountability measures which focus on results rather than delivery, high standards, and continual problem solving. The organizational structure needs to be jointly developed, utilizing a shared decision-making process with time for collegial support through joint planning time, support for the continuous examination of practice, and access to resources for the continuous improvement of practice. To support the inquiry directed at improving practice, schools need to establish a review board to review research being done at the school.

PPSs are supposedly the most comprehensive examples of the teacher professionalizing movement because they strive to create better schools for both students and teachers. PPSs attempt to eradicate teacher isolation and student disengagement and replace them with a collegial and client-centered environment created using the best we know about teaching and learning. Unfortunately, PPSs in this form are largely conceptual; examples are vague and underdeveloped.

Even so, many places around the country are experimenting with PPSs: White Falls, New York; New York City (where Columbia University is in the process of setting up forty PPSs); Milwaukee, Wisconsin; Albuquerque, New Mexico; Jefferson County, Kentucky; West Virginia's Benedum Project; Michigan State (where the Michigan Partnership funds twenty-five PPSs under the guidance of Judith Lanier); Wayne State University; and the states of Kansas, Oklahoma, and Arkansas. Many focus on teacher professionalization at the exclusion of restructuring around student learning. Few schools seem to be grappling with the nature and assumptions of schools and learning as PPSs are intended to do.

West Virginia may be further along than most, for it has set out to transform two cultures—higher education and public schools—in order to achieve improvements in teaching and learning in both settings (Holmes Group, 1991). Kentucky has a program of twenty-five PPSs that are restructuring from the ground up. Although each of the Kentucky PPSs is unique, they share a belief in the following: Student success is the goal of all school activity; students need to be challenged and to pursue difficult tasks; learning is an active process; teachers are leaders and principals are leaders of leaders; and staff success results from motivated, competent people working in an environment committed to their success, continuing growth, and development (Gheens Academy, 1991).

To achieve these goals, the PPS process has included staff meetings during which members read, argue, and write a vision statement. They have been aided in their efforts by the Gheens Academy and membership in the Participative Management Pilot. Many of these schools are implementing interdisciplinary or integrated courses, block schedules, and teacher research as a method of problem solving. They sound similar in description to a "generic" restructuring school, complete with changes for teachers, students, curriculum, and governance. The visioning process has lead other schools to join either CES or the magnet school program (Gheens Academy, 1991).

The advantage of PPSs is that in the most ambitious examples, there appear to be numerous teacher changes. They are moving from a bureaucratic model of accountability to a professional one whereby the responsibility ends when students learn and not when the curriculum is covered. Ensuring student success requires teachers to be reflective, analytic, and inquiring. The teacher becomes the coach, questioner, facilitator, researcher, and organizer. The teacher is called upon to analyze, solve, and frame problems; judge; compare; and consult (Levine & Gendler, 1988). In addition to the role changes in a PPS, there is a shared responsibility to adhere to the ethics of the practice and to the mission of the school and to police its members. There can be a mindset change from schools as centers of bureaucratic compliance to schools as centers of inquiry capable of constant assessment and subsequent improvement similar to the problem-solving ability of "focus schools."

Example Four: School-University Partnerships

Goodlad (1990) has created school-university partnerships around the country in over 120 schools as a way of changing classroom practices by improving the preparation of teachers and administrators. Schools are linked with universities as a way of renewal for the following reasons:

- The action-oriented culture of the school and the inquiry-oriented culture of the university offer the promise of shaking loose the "calcified programs of both" by discussing how teachers teach and how teachers prepare to teach.
- A school-university partnership offers promise if stimulating collaborative inquiry into the problems of both schools and the relevance of various research paradigms occurs.
- The agendas of instructional, curricular, and organizational improvements needed in the schools and the relevance of teacher education and research programs in schools of education appear to overlap.
- Schools must have ongoing access to alternative ideas and knowledge to assure the best practices.

The Puget Sound Educational Consortium at the University of Washington is a good example of such a partnership. This teacher-university group publishes books together on teacher leadership and ways teachers can conduct research on their classroom instruction (Puget Sound Educational Consortium, 1990). They also work together on *Soundfire*, training in the Foxfire approach (Puget Sound Educational Consortium, 1986).

Stanford has a program similar to Goodlad's called the Stanford-Schools Collaborative. The collaborative has two major legs: the Alliance for School-Based Change, an alliance which helps site teams with school reform and with action-based research, and the Professional Development Center, an off-site center devoted to teacher induction, improvement in the teaching of critical thinking, development of teaching strategies for heterogeneous classrooms, and school leadership. Both programs offer a variety of seminars with teachers and professors, in addition to individual school change.

The Relationship to Changes in Vocational Education

The various efforts to professionalize teaching should, in theory, be applicable to all teachers from any discipline. They are therefore compatible with efforts to integrate vocational and academic education. Indeed, such integration efforts—which have been most successful in cases where vocational and academic teachers have actively collaborated with one another—reinforce the need for professionalism because of the need for all teachers to collaborate with others and to develop local approaches to integration that fit local needs and resources.

At the same time, we suspect that the movements to professionalize teaching have not yet drawn many vocational teachers into their efforts. As ways of increasing the contact among teachers who have historically been separate from one another—particularly the case with vocational instructors, though it has been common among teachers in many academic disciplines as well—the various approaches to teacher professionalism provide another way of creating coherent educational institutions from the fragmented, classroom-bound approach of current high schools.

CURRICULAR AND TEACHING REFORM

A second approach to school reform is to change the curriculum or method of teaching. Schools beginning their reform strategies in this way believe the heart of the problem with schools lies in the classroom. As with teacher professionalization, the examples of this approach vary tremendously. Some represent only first-order change. For example, some schools with a staff development program may focus on implementing cooperative learning, critical thinking, or curricular integration as isolated changes. These may be reforms teachers refer to, less than fondly, as the "latest fad." The more ambitious examples are similar to comprehensive restructuring (described under approach four) because they redesign schools to fit new conceptions of curriculum, instruction, and assessment. What is remarkable about the majority of these examples is their departure from the behaviorist interpretation of learning to a cognitive science or constructivist approach and a corresponding antipathy toward the factory model of teaching rooted in a behaviorist philosophy. We have discussed elsewhere (Grubb et al., 1991) that these reforms move away from the "skills and drills" approaches to teaching in the direction of methods of "meaning making."

In addition to individual schools, numerous experiments at the state level begin with curriculum and instruction. Many resemble California's state frameworks that suggest major themes, theories, and implementation strategies for each core discipline. Others such as Maine's Common Core of Learning are attempts to redesign the curriculum around expected outcomes. The one hundred fifty-one goals for student learning are based on what students should know in four areas—(1) personal and global stewardship, (2) reasoning, (3) problem solving, and (4) the human record, in addition to skills and attitudes (Anderson, Cox, & O'Connell, 1989). On a national level, in addition to the standards movement (addressed in approach four), professional associations such as the National Council of Teachers of Mathematics (NCTM) and the National Science Teachers Association are working on new standards and approaches for the core disciplines. Most recently, they have begun to work together on the standards.

Behaviorist and associationist principles are predicated on several beliefs. First, students are empty vessels to be filled by teacher talk and thought. Second, knowledge can be reduced to specific, readily identifiable parts. Students are left on their own to make sense of the different pieces they have learned. Third, what we learn is the result of an accumulation of pieces of knowledge and skill. Fourth, rewards and punishment ensure the desired pieces are learned. Schools that adhere to this philosophy focus on the coverage of a predetermined content and ignore individual or cultural differences, motivation or previous knowledge, and the individual's desire to create meaningful learning experiences. This approach fits nicely into a factory model of the organization and operation of schools and was adopted during the industrialization movement as a way to ensure schools were adequately preparing students for their future roles (Caine & Caine, 1991).

In contrast, the most common interpretation of learning used in the more comprehensive curricular reform approaches is the cognitive approach. Although it is often marketed as the latest breakthrough, it is an expansion of Piaget's ideas about constructivism as well as earlier ideas associated with John Dewey. Piaget argued that knowledge acquired through memorization is not real knowledge that can be used. True learning is possible only through the individual construction of ideas (Piaget, 1948/1974).

Modern cognitive psychology shares his view that people are not vessels of information but builders of knowledge structures. They have expanded his interpretation and consider learning as meaning and thinking-centered. Applied to the classroom, this philosophy requires teachers to be much more student-centered, using the following essential principles (Resnick & Klopfer, 1989):

- *Centrality of knowledge*
  Individuals need organizing schemas with which to interpret and elaborate new information. With every new piece of information, students need to question, examine, and build new knowledge structures. This process is also referred to as active learning or meaning making.

- *Self-regulation of learning*
  Learners need to develop strategies for managing, monitoring, and evaluating their own learning.

- *Interaction with a personally meaningful learning environment*
  Students need to be engaged intellectually as well as emotionally. They are more successful when they are learning about aspects of their own world.

- *Whole to parts*
  Learning often proceeds from whole to specific parts to whole again.

One current term for this group of principles is "cognitive apprenticeship," which involves applying the ideas and elements of a craftsman apprenticeship to the acquisition of academic knowledge. Schools provide students with the opportunity to participate in productive and disciplined mental work that is personally meaningful and that requires real tasks—tasks that are contextualized and not merely exercises with component skills. Apprentices need time to observe others in this craft in order to understand expectations of effective performance (Resnick & Klopfer, 1989). Teachers must also encourage students to elaborate upon what they are learning. In schools where cognitive techniques are employed, students take more responsibility for their own learning, and instruction moves away from skills and drills (Viadero, 1991). What this means for teaching is that to increase a student's knowledge, teachers need to provide learning opportunities that immerse the student, allow for active processing, and are personally meaningful (Caine & Caine, 1991).

Applying this philosophy has implications for the role of teachers and schools, too. Teachers must be role models of active, meaningful learning; they need to actively construct their lesson plans, considering both the content and the method of instruction. Schools must be willing to give teachers considerable decision-making power over what is taught. In this way, a cognitive science approach to schooling overlaps with professionalizing efforts. Just as PPSs are finding it difficult to increase professionalism in the traditional structure of schools, those who are implementing a cognitive science solution also need to restructure schools.

Example One: Curricular Integration Efforts

Curriculum integration is one response to many deep-rooted problems with education. Advocates assert integration can stem the fragmentation in school organization and invigorate the curriculum with greater relevance to meet student needs. Integration can also solve the problem of the never-ending growth of information (Jacobs, 1989). Integration can be the vehicle to help disciplines such as math and science change their pedagogy away from skills, drills, and memorization to higher-order thinking and active learning which is consistent with the skills employers want in their employees (Cushman, 1992). If schools are to change with the economy, they must integrate curriculum because employees need to be problem solvers, decisionmakers, adept negotiators, and thinkers who are at home with open-endedness and resourcefulness (Caine & Caine, 1991). Finally, integration is appropriate because of what we know about how people learn. Integration can be viewed as a confluence of three developments: (1) human learning, (2) instructional strategies, and (3) curriculum development. Integration across the curriculum can also occur, however, using a behaviorist philosophy of learning. Hence, integration does not necessitate a student-centered, meaning-making curriculum. Schools that fit this approach typically experiment with curricular integration in only a few, isolated classes. For example, they may integrate two common themes or projects.

There are many approaches to integration with various interpretations of how, what, and to what degree integration should take place. Robin Fogarty's (1991) description of ten possible ways to integrate the curriculum is one rather comprehensive example. For the purpose of this analysis, we will use her spectrum (detailed examples are provided in Appendix B):

1. *The Fragmented Model*

   This is the traditional model of core disciplines as they are currently organized in most high schools—isolated instruction of individual subjects.

2. *The Connected Model*

   This model focuses on making connections within each subject area. The plan is to relate ideas within the disciplines instead of assuming students can and will do this on their own, as is the tradition. In *The Cunning Hand, the Cultured Mind* (Grubb et al., 1991), this is referred to as horizontal integration. (See Appendix B for examples of this model in science education.)

3. *The Nested Model*

   Curriculum in this model is integrated across three dimensions. Some of the teachers in the Scope, Sequence, and Coordination (SSC) projects, for example, use this model when they focus on thinking and social skills at the same time that they focus on specific content.

4. *The Sequenced Model*

   This model views curriculum as interdisciplinary, whereby teachers of various disciplines teach similar content themes at the same time. This is a fairly common model, especially with English and social studies. One can also find more sophisticated models of this among vocational, mathematics, and science courses. In this model, integration occurs when members of two courses work on a project together and each group completes part of the project. Another, more sophisticated example of this model, again combining vocational and academic education, occurs when two teachers teach the same content from their respective disciplines and then switch classes. This way students learn two ways of thinking about the subject.

5. *The Shared Model*

   This model views curriculum through two lenses, like binoculars, bringing two disciplines together into a single focused image.

6. *The Webbed Model*

   In this model, various disciplines can be taught at once as they connect to a certain focus or theme. This is similar to the correlational theme described by Plihal, Adams Johnson, Bentley, Morgaine, and Liang (1992) when they describe three possible ways for webbing—around a theme (as Fogarty describes), around a problem, or around a chronological-historical approach.

7. *The Threaded Model*

   In this model, courses are integrated around the major core ideas of the discipline. For example, in reading, math, and science, teachers can focus on predictions while social studies teachers focus on forecasting current events. In this example, a particular technique is threaded across disciplines.

8. *The Integrated Model*

   In this model, interdisciplinary topics are arranged around overlapping concepts and emergent patterns and designs. This crossdisciplinary approach blends the four major disciplines by finding the overlapping skills, concepts, and attitudes. The integrated model is most similar to practices that take place in academies or in clusters or schools with an occupational focus. This approach is also similar to the ideas in the California High School Task Force's (CHSTF's) (1992) newly released *Second to None*, discussed in approach four and in Appendix B.

9. *The Immersion Model*

   In this model, the integration of curriculum occurs within the mind of the learner with little or no intervention. Fogarty gives the example of graduate students and how they tend to integrate information constantly and naturally.

10. *The Network Model*

    In this model, like the Immersion Model, the learner also directs the integration process. A learner's interest directs him or her through various avenues of exploration along various disciplines in order to further explore an idea or project of interest.

Most of Fogarty's ten models are similar to the models of integrating vocational and academic education in *The Cunning Hand, the Cultured Mind*. The teacher collaboration creates horizontal integration—integration across subjects—and in the case of the Integrated Studies Project, vertical integration or the creation of sequences of integrated courses. It is not clear if all teachers and disciplines share equally in the responsibility for integration as in *The Cunning Hand, the Cultured Mind*'s model four. It is apparent that integration across vocational courses is left out of most of these examples. Furthermore, like models one through five in *The Cunning Hand, the Cultured Mind*, these models seem to have little potential to reconstruct the high school, as integration seems to only occur in academy-like settings or an occasional project or across a few courses. Furthermore, there seems to be little connection to the outside world, and the changes in both the teacher and student roles seem marginal unless pedagogy departs from the traditional model.

Example Two: Comprehensive Curricular and Teaching Reform

Schools using this approach also argue that the classroom level needs reform. What distinguishes these schools is their attempt at second-order change in order to redesign the high school around their philosophy of learning and instruction. For the most part, the learning philosophy of schools in this example is similar if not identical to that of the cognitive scientists. However, there is some variation among these examples, beginning with the reason *why* curriculum and instruction is the ideal launching point. Each of these approaches varies in its emphasis and explanation of what is missing in the current models: (1) the Coalition of Essential Schools (CES) begins with the relationship between the teacher and student or with questions of pedagogy; (2) the School Development Program begins with the relationship of the school to the child, arguing that the entire child (e.g., psychological, social, and academic) is the business of schools; (3) the Accelerated Schools Project, Project Zero, and Paideia begin with the expectations schools hold for students' ability and the corresponding curriculum; and (4) Outcomes-Based Education and performance-based systems begin with the outcomes we expect of students in order for them to graduate.

Coalition of Essential Schools

CES evolved from the study on high schools that became the book *Horace's Compromise* (Sizer, 1984). This study identified five imperatives for better schools:

1. Give room to teachers and students to work and learn in their own, appropriate ways.
2. Insist that students clearly exhibit mastery in their school work.
3. Get the incentives right for students and teachers so that they want to work hard—create a school structure that encourages success.

4. Focus the students' work on the use of their minds.

5. Keep the school structure simple and flexible.

The ideas of the coalition have been greatly influenced by the progressive education philosophy associated with John Dewey. For example, students learn best when they are engaged—when the object of their study attracts and holds their attention and commitment. Effective schools work hard to engage students, make them focus on the core questions of the discipline, and expect them to do the work necessary to answer these questions—to create responsible, personally engaged learners with "habits of mind" (Sizer, 1989).

These ideas conflict with the current practices dominated by teacher talk and student passivity. Students see little meaning in their work because teachers rather than the students do the work. Furthermore, many of the standardized tests used to hold schools accountable reward mere display of knowledge and not meaningful understanding. Few emphasize serious habits of thinking or thoroughness of understanding. Sizer (1989) believes schools need to devise tests that reward serious, deep, and original work.

What this requires at the school level is a fundamental rethinking of the ways teachers have taught and the way they should teach. Although each CES school may look different in order to accomplish this, they share a commitment to the following nine core principles that evolved out of Sizer's 1984 study:

1. The school should focus on helping adolescents learn to use their minds well. Schools should not attempt to be comprehensive if such a claim is made at the expense of this central intellectual purpose.

2. The school's goals should be made simple—each student should master a limited number of essential skills and areas of knowledge. The program design should be shaped by the intellectual and imaginative powers and competencies that students need rather than by conventionally defined subjects. Schools should emphasize student mastery and achievement, not mere "coverage of content"; hence, less is more.

3. The school's goals should apply to all students, and tracking should therefore be abolished.

4. Teaching and learning should be personalized. To accomplish this goal, decisions about the details of the course of study, the use of students' and teachers' time, and the choice of teaching materials and specific pedagogies must be placed in the hands of the principal and staff.

5. The governing metaphor of the school should be student-as-worker rather than the more familiar metaphor of teacher-as-deliverer of instructional services. When a student is acting as a "worker," he or she can answer the following questions: What is my task? What is its purpose? What is it a means to? What do I need to do next? How does it relate to what I did previously? What know-how and knowledge are required to do well? How will my work be judged? What is important about this work? What can I do to improve? A prominent pedagogy is coaching to provoke students to learn how to learn and thus teach themselves.

6. The diploma should be awarded upon a successful final demonstration of mastery—the exhibition.

7. The tone of the school should explicitly and self-consciously stress values of unanxious expectation.

8. The principal and teachers should perceive themselves as generalists first and specialists second. The staff should have a sense of commitment to the entire school.

9. Total student loads per teacher should be eighty or fewer and teachers should have substantial time for collective planning with teachers. Competitive salaries for staff and cost per pupil should not exceed by more than ten percent that at traditional schools. (CES, 1988)

To gain membership to CES, schools proceed through three developmental phases: (1) Exploring Schools: Teachers and administrators read and study to understand the nine core principles and their implications for school change and to determine if they would like to proceed. (2) Networking Schools: Schools in this category have determined they would like to continue with developing a plan to adapt the nine core principles. (3) Essential Schools: Schools in this category have officially joined CES. The faculties begin to implement the nine core principles. (For a detailed example of a CES school, see Appendix C.)

It has not been easy for schools to redesign themselves around the nine core principles to produce change. However, not all school reform approaches seem to understand the degree of difficulty or give as much time and support to implementation issues. CES has learned a great deal about systemic change and how to best support it. Their lessons are as follows:

- The nine core principles act in combination. They all have to work together, and this makes change very difficult.

- First and foremost, CES is a movement in pedagogy, in the relationship among teacher, student, and the subjects of study that bring them together. If the relationship between the teacher and the student are right, the rest of the school will fall into place.

- There must be a clear sense of goals—for students, teachers, administration, and parents. A prime vehicle to set goals is the exhibition, the demonstration by the student that he or she understands a rich core of subject matter and can use it in resourceful, persuasive, and imaginative ways. The goal-setting phase, however, is not necessarily an easy process. In *Smart Schools, Smart Kids*, Fiske (1991) argues that the goal setting process has bogged schools down when CES has been attempted in comprehensive high schools with vocational programs. Evidently, teachers in nonacademic fields have felt threatened by the coalition's emphasis on core academic courses and interdisciplinary teaching. Second, teachers have trouble becoming generalists and giving up the specialist title. In an interview, Sizer said the pressure to "simplify, narrow and focus" the curriculum is a common criticism. His answer to this criticism is to encourage distinctions or unique designs and allow choice among high schools. It is not surprising that schools have been reluctant to let go of the shopping mall high school model because it seemed to guarantee that schools were meeting the needs of all students.

  For CES schools in Kentucky, the biggest implementation obstacle has been the inability of the faculty to form a common purpose (Timar, 1989). Often, the response to this dilemma is to create schools-within-a-school as a temporary situation until all faculty members agree to the same goal. Unfortunately, schools-within-schools have been inadequate solutions. Schools have experienced problems with competition from competing and jealous faculty members not involved in the schools-within-a-school.

- The significant and sustained support of faculty is critical.
- The planning for a restructured program takes substantial, unremitting effort and emotional energy. The time and personnel necessary for the continual assessment of progress and the changes it suggests must be built into the school day. Staff development is critical.
- Personalization is a happy luxury but also a troubling new responsibility. The differences among students become clear when faculty-student ratios drop. Varying learning styles, differing motivations, and rapid or sluggish rates of learning impinge on the coalition teacher.
- Schools have found that summer institutes are necessary to help teachers broaden and deepen their subject matter preparation prior to the fall semester (Sizer, 1989).

Another difficulty of implementing CES schools has been found in Kentucky, where Timar (1989) has reported that many teachers consider school restructuring as simply a matter of adding programs (like other first-order changes). Given this view, the most common additive has been the integration of subject matter to reduce fragmentation. In other words, teachers with a limited understanding of CES have simply been looking for ways to teach their subject better and not ways to create a new paradigm for schools.

In light of these issues, CES is prepared to help guide implementation. It offers publications, annual meetings, workshops, professional development institutes, and on-site work with school faculties by their national faculty—teachers and administrators from CES sites that are extensively trained by the coalition and are selected to help other coalition schools (ECS, 1991). In addition, the coalition was recently awarded a large grant to implement five national satellite centers. These centers will have the responsibility of training, providing technical support, and conducting research.

In addition, CES is working in partnership with ECS in a project called Re:Learning. In an effort to create comprehensive and systemic change from schoolhouse to state house, Re:Learning was created to help remove the institutional barriers to change.

District and state leaders in a Re:Learning state work on rethinking the assumptions and practices of schools and creating changes in administration and policy that respond to and support the work of schools. Some of the policy areas needing to be changed include school and student assessment, teacher certification, resource allocation, management, leadership, graduation requirements, and support systems for teachers and schools. Re:Learning states utilize the following guiding principles in redesigning policy: (1) build a new vision of education, (2) organize on behalf of student learning, (3) create new working relationships, (4) develop a culture of learning, (5) develop coherence and meaning in all action, and (6) act with regard for people (Anderson & McCarthy, 1988).

Participating states are classified as either networking or Re:Learning states. Networking states have expressed willingness on the part of the governor's office, the state department of education, districts, and schools to explore ways in which the nine core principles may be adapted for the state education system. This cadre is responsible for identifying the changes necessary to allow school redesign to flourish. Re:Learning states are those that support schools actively incorporating the nine core principles and that have established a leadership group to focus on restructuring the full education system. States must agree to participate for five years and provide funding for the Re:Learning schools. At least five schools must agree to become members. There are currently nine networking states and nine Re:Learning states: Arkansas, Colorado, Delaware, Illinois, Indiana, Maine, New Mexico, Pennsylvania, and Rhode Island (Olson, 1990).

The ideas of CES and Re:Learning seem a perfect approach for the integration of vocational and academic education. In fact, several vocational schools are working with the principles. Hodgson Vocational-Technical High School (HVTHS) in Delaware, for example, is utilizing some of the core principles. HVTHS requires a senior project which integrates an English research paper with a vocational project and oral presentation, like model five in *The Cunning Hand, the Cultured Mind.* This project is essentially an exhibition across three different courses that lasts one year and culminates right before graduation. Students are required to select an advisor and members of their committee to evaluate their exhibition. Students meet frequently with their advisor to discuss their progress; they are required to meet several deadlines to ensure timely completion. The meeting must occur outside of school time because there is no advisory period to work on this. The teachers say it has changed the culture of the school for both students and teachers. The teachers are much more collegial while the students, the seniors at least, exhibit a new sense of purpose. The project forces them to interact with the outside world and to confront their futures. In addition, the teachers have redesigned the curriculum to ensure students are prepared to meet the requirements of the exhibition (Gadowsky, 1991).

Although CES seems like an appropriate approach for the integration of vocational and academic education, it is not clear how many schools are seeking solutions similar to HVTHS. Redesigning the curriculum around the integration of vocational and academic education does not appear to be a natural choice; integration across core courses seems difficult enough without having to mend the historical rift between vocational and academic educators. Still, CES is similar to efforts to link vocational and academic education such as model six (academies), model seven (occupational focus/magnets), and model eight (career clusters), at least in terms of confronting the dysfunctions of the shopping mall high school.

The ideas of CES have spread tremendously. Formally, there are approximately 125 member schools in 26 states. It is difficult to know how far the influence of CES extends because many schools that are not formal members use the language of CES such as "habits of mind," "less is more," and "student as worker." In addition, the coalition is joining forces with the School Development Program at Yale, Project Zero at Harvard, and the Education Development Center in Newton, Massachusetts. Together they submitted a proposal and have received funding to be one of the New American Schools, part of America 2000. CES says that it is also compatible with the ideas of the NCTM Project 2061 and California's Restructuring Pilot 1274, to name two. California has just published a high school task force report that advocates a "model" remarkably similar to model eight in *The Cunning Hand, the Cultured Mind* (schools with occupational paths) and also claims to have been influenced by CES. Furthermore, CES looks like the best we know about PPSs or SBM in terms of changes in teacher roles. However, Sizer (1989) argues that CES is different because it starts with a reason to change and then proceeds to empowerment, not the other way around.

The School Development Program

Like CES, the School Development Program (SDP) is a comprehensive restructuring project that focuses on relationships within the school. SDP focuses on social and psychological relations and the principles of child development in addition to pedagogy. SDP is a reform approach primarily for inner city elementary kids, while CES is currently being implemented primarily in high schools.

James Comer (1991), the creator of SDP, believes most education problems stem from lack of understanding between homes and schools. Many poor people of color, because of their own negative experiences with schools and government, do not believe that schools sincerely want to educate their children. The schools have two fundamental flaws: (1) the hierarchical system makes it impossible for schools to respond to a child's developmental needs—particularly for inner-city kids who are fundamentally alienated from schools because their worlds are so different, and (2) teachers are not trained to understand the cultural differences kids bring to schools. As a consequence, many poor people do not trust schools as socializing agents. Furthermore, Comer believes learning and behavior problems in our students are the result of conflicts of race, class, income and culture between a student's home and the school environment—and not because of the students themselves.

To correct these systemic flaws, Comer advocates a reinvention of schools. He believes schools need to be focused around and involve communities in running the school. Parents need to create a shared sense of purpose with the staff. Comer suggests three goals for schools: (1) induce parents to participate in the school's life; (2) force school administrators, teachers, and other staff to share authority in managing the schools; and (3) bring guidance counselors, mental health professionals, and teachers into a team that meets regularly to combat behavior problems (Marriot, 1990).

To implement these goals, schools need to create three teams: (1) A school planning and management team to create the comprehensive school plan, figure out how to implement it, and provide ongoing assessment. (2) A mental health team to recommend policy changes to prevent behavior problems and to assure that principles of child development and interpersonal relationships are embodied in the goals of the school. This team also works with individual teachers in identifying and preventing academic, disciplinary, emotional, and family problems (Fiske, 1991). (3) A parental program, whose purpose is to plan social events that will improve the school climate and bring less involved parents into the school.

In terms of curriculum, there are conflicting reports about whether this reform has anything to do with curriculum at all. Comer (1991) has stated that his program simply helps create the social infrastructure that makes improved teaching and learning possible; and according to some reports, the curriculum does not change at all beyond the greater emphasis placed on reading, writing, and comprehension skills (Haynes & Comer, 1991).

Yet, there are also accounts describing curricular changes, particularly as the mental health approach is integrated into curriculum activities. Teachers review achievement data, determine needs for each grade level, and bring in curriculum specialists as consultants. Teachers also develop social skills projects which incorporate both social and academic skills in a series of units designed to improve self-concept (Haynes, Comer, & Hamilton-Lee, 1988). In addition, underlying this approach is a pedagogical philosophy that students understand concepts best when they experience them. Teachers use techniques that promote experiential learning such as drawing on activities from students' own background and culture.

Although they begin with a different statement of the problem, SDP ultimately reflects the principles of PPSs and the institutional culture of "focus schools." SDP teachers take on new roles in order to accommodate individual needs. They must be trained in developmental principles, thereby expanding their professional knowledge base. They must use professional discretion in problem solving and continually ask themselves, "Are we meeting a child's needs?" In this way, SDP is an approach tailored for each child. Furthermore, teachers must work collegially, hold each other accountable, and share a sense of purpose to help all children in the school.

This program has been implemented in one hundred fifty schools around the nation. Statistically significant gains have been reported in the targeted academic and social areas (language arts, reading, mathematics, attendance, and classroom behavior), compared with similar schools not using the approach. Schools have also reported a significant decline in suspension rates, absenteeism, and discipline problems (Haynes & Comer, 1991).

SDP is continuing to expand beyond the current one hundred fifty participants. They are working on forming partnerships with schools of education and state departments of education to support the local efforts. Comer is also exploring the possibility of a partnership with over one hundred research schools of education involved in promoting PPSs. In addition, they are working on forming a network at the national level.

The Accelerated Schools Project

Like SDP, the purpose of the Accelerated Schools Project (ASP) is to improve the educational outcomes of at-risk students. According to Henry Levin (1991), the creator of ASP, schools are doing a poor job of educating disadvantaged youth; and we cannot afford to ignore the problem of at-risk youth any longer. The consequences include the emergence of a dual society with a large and poorly educated underclass, massive disruption in higher education, reduced economic competitiveness, and higher costs for public services to respond to increased poverty.

Levin also argues that the 1980s reform agenda—the first wave, aimed at increasing standards—was an inappropriate solution for this group of students. At-risk students begin school with a learning gap then are placed in less demanding instructional programs to remediate their deficiencies. This strategy systematically reduces the expectations we hold for these students and therefore widens the achievement gap. The wave one reforms were also too piecemeal and, as a consequence, missed the heart of the problem for at-risk kids.

ASP is a response to the deficiencies of wave one. Its goals are to better educate the disadvantaged, to bring them into the mainstream by the completion of sixth grade, and to help them see themselves as productive learners. To accomplish this, the whole focus of the school must be on student strengths rather than their deficits, just as it is for gifted children. The focus of building on strengths must also be extended to two other parties—teachers and parents. The overall school environment must be characterized by that found in gifted programs: high expectations and empowerment, deadlines by which children are expected to perform at grade level, planning by the educational staff who offer the programs, intense parental involvement, democratic governance, cooperative learning, and accelerated and language-rich curricula (Levin, 1987).

Participants in ASP schools organize their schools around the following principles:

- *Unity of purpose*
  The entire staff needs to work together to determine the vision of the school and how it can be achieved. The staff works together in cadres and steering committees.

- *Empowerment and responsibility*
  Decision making and responsibility for outcomes must be at the school site level. As a school, staff must decide what to teach and how it should be taught. Then, the school should be held accountable for the outcomes.

- *Building on strengths*
  The schools must focus on the strengths of a child as opposed to the weaknesses. The strengths should be used as a guide to program construction as well as a bridge to new areas of learning.

In terms of curriculum, the school designs the curriculum around common objectives and students' needs just like the Comer model. Classes are composed of students with mixed abilities and use a language-based approach for all subjects. In addition to accelerated learning, the teaching strategies are selected by the teachers, based on their knowledge of strategies that work well with at-risk kids. Teachers use active learning strategies such as peer tutoring and cooperative learning. Students work on projects requiring resources outside the classroom. Lessons emphasize analysis, synthesis, problem solving, and application in all subjects (Rothman, 1991). These practices are all consistent with the cognitive science philosophy of learning and CES method of instruction.

Given the above description, it should be clear that a school does not become an accelerated school without significant organizational, cultural, and ideological changes. The transformation process is similar to that of PPSs because of the focus on action research and the strength of teachers as the change agents. Levin, Hopfenberg, Meister, and Rogers (1990) formally refer to this second-order change process as the Inquiry Process for Change. In this approach, teachers play the role of the school's experts as they analyze the individual and organizational character of the school to design a unique solution for meeting the goals of accelerated schools. Levin selected this approach for its dual components of examining the organization as well as the individual teacher and its congruence with the ideas of democratic government.

The Inquiry Process for Change has six stages: (1) Creating a vision for the school community in congruence with the main goals of accelerated schools. (2) Identifying sets of questions ("problematics") that pinpoint potential obstacles to fulfilling the school vision. To define the problematics, teachers are divided into cadres and asked to reflect about their concerns in meeting the educational mission. (3) Looking inwards. In this stage, the members of the cadres study the existing programs and practices of the school to better understand the problematics. Understanding is enhanced by observing classes, surveying parents' attitudes, and conducting interviews of staff members and local service organizations. (4) Looking outwards. This stage involves researching other schools to see how they have successfully handled similar problematics. Cadre members also read and discuss significant journal articles and research studies. (5) Synthesizing new ideas. In this stage, the cadre members create action plans from their ideas in stages three and four. (6) Initiating pilot programs and evaluations. Cadre members test the new programs for four to six weeks, evaluate how well the new approaches meet the needs of the students, then modify if necessary (Levin, 1991).

The inquiry process is instituted as a continual process in the school to replace the current infrastructure. The new organizational, curricular, and instructional strategies, created through the Inquiry Process for Change, may instill in schools a long-term orientation to change and progress. A cautionary note from Phil Schlecty (founder of Kentucky's Gheens Academy) is that local control can inadvertently lead to more emphasis on maintenance functions than on enhancement or enrichment. ASP could run into the same problem in recreating the current infrastructure of schools that some CES schools have.

On the other hand, the teacher cadres create a structure for school-based decision making that relies on continual evaluation, assessment, and accountability. The use of cadres may connect the change process to a rich body of information so that all attempts at school improvement are tightly connected to classroom activities and student needs. In addition, the call for teacher participation and problem solving is an appeal to professionalism complete with the leverage over destiny.

50

As with the Comer approach, ASP shares characteristics with CES's preferred pedagogy, the professionalism and problem solving found in PPSs, and the teacher discretion exercised in both PPSs and SBM. Accelerated Schools differ from Comer's approach in their lack of attention to the personal side of at-risk students, despite the schools' apparent focus on at-risk students' needs.

Project Zero

Project Zero is another major school reform idea that, like the Accelerated Schools Project, is designed around student strengths. Created by Howard Gardner around the theory of multiple intelligence, pilot schools exist in Boston, Pittsburgh, and Indiana.

Gardner's theory of Multiple Intelligence (MI) (Gardner & Hatch, 1989) challenges the prevailing concept of intelligence as a single general capacity. The MI theory posits seven basic types of intelligence:

1. Linguistic intelligence: Sensitivity to the meaning and order of words and the varied uses of language.

2. Logical-mathematical intelligence: Ability to handle long chains of reasoning and to recognize patterns and order in the world.

3. Spatial intelligence: Ability to perceive the visual world accurately and to recreate, transform, or modify aspects of that world based on one's perceptions.

4. Bodily-kinesthetic intelligence: Ability to use the body and to handle objects.

5. Musical intelligence: Sensitivity to pitch, melody, rhythm, and tone.

6. Interpersonal intelligence: The ability to notice and make distinctions among others, including the capacity to discern and respond appropriately to the moods, temperaments, motivations, and desires of other people.

7. Intrapersonal intelligence: Access to one's own feelings and the ability to discriminate among them and draw upon them to guide behavior; knowledge of one's own strengths, weaknesses, desires, and intelligences.

Because traditional schools have focused only on linguistic and logical-mathematical intelligences, this philosophy of learning requires an alternative conception of school structure. First, the classroom learning environment must be restructured to emphasize more than the traditional linguistic and logical mathematical symbol systems. Gardner (Blythe & Gardner, 1990) advocates contextualized learning, particularly through apprenticeships. Second, alternative assessment procedures are needed to capture what standardized tests cannot. Third, classrooms need to alter how students are currently uniformly educated with the same methods and materials in order to accommodate individual differences.

The Key School in Indianapolis, Indiana, is an example of a school designed around the theory of multiple intelligence and is the brain child of eight teachers who convinced the school district to let them form a new school. The mission of the school is to produce knowledge in the following areas: (1) the arts in general education; (2) interdisciplinary curriculum development (where all seven intelligences are given equal emphasis); and (3) qualitative educational evaluation (Indianapolis Public Schools, 1988). The teachers say their main purpose is to fashion a creative school that benefits all—not just the gifted and talented (Fiske, 1991). Students are admitted by lottery.

The school is structured so first-, second-, and third-grade students and fourth-, fifth-, and sixth-grade students are grouped together. Class sizes are limited to twenty-two. During an average day, students play the violin, learn Spanish, move to music, use the computer, and work on their spatial skills through board games. The curriculum is tied together through school-wide themes that change every nine weeks. At the end of nine weeks, all students must produce a project that illustrates the theme (Olson, 1988).

Four days a week, students also spend time in "pods," which are multi-age groupings the students personally select. Pods are designed to emphasize work in a particular cognitive area/intelligence style. The Key School has the following pods: math pentathlon, architecture, actors unlimited, choir and instrumental music, problem solving, mind and movement, and the physical sciences. Similar to ASP, students can participate in after-school electives such as photography, computer graphics, and gymnastics. Once a week, the students also participate in a school-wide event that brings together artists, business people, and other professionals both to serve as role models and to talk about their work.

Students are not given grades but are still evaluated by the standardized tests. The school is working to expand these limited assessment opportunities to include more qualitative assessments. Currently they use video portfolios which document each student's interests and accomplishments throughout the elementary years. Each student also keeps a reflective journal with weekly entries about the central theme and the student's personal project (Olson, 1988).

Similar to the Comer model and ASP, parental participation is encouraged with parents taking part in extended day activities as well as volunteering on a number of parent-advisory committees.

Clearly, the philosophy of learning and corresponding curriculum has changed a great deal in these schools. Despite the focus on several types of intelligence, many ideas reinforce the tenets of the cognitive science philosophy of learning. For example, the focus on student selection supports the idea of learning as personal meaning-making that is contextually appropriate and begins with the present knowledge base. The student project that culminates each nine week school-wide unit also emphasizes student activity as well as the need for context and self-regulation.

The MI approach (and the Key School, in particular) is similar to a PPS because the teacher's role has changed in many ways. First, teachers have to adopt a university mentor-scholar to work with them in their classrooms. Together they work on instructional strategies or other areas of interest with respect to a teacher's particular class. This relationship can be structured so they work as partners in action-based research. Second, in the Key School, the teachers planned the school from the ground up and sold it to the school district. This expanded their use of professional discretion, knowledge, and collaboration. Third, since so much of the school day is spent in interdisciplinary, multi-age groupings, teachers have had to learn to work collegially. They have also had to expand their perception of a "generalist" to consider themselves as specialists in the "pod" areas.

In the Key School, the students' roles have changed, too. Students have had to take much more responsibility for their learning. Responsibility is nurtured through the selection of "pods," daily journal entries, school theme culminating activities, and video portfolios.

The entire school has had to change to accommodate the MI philosophy, too. The Key School is unique in that it was constructed from the ground up. This is similar to that used by "focus schools" and some magnet schools. The Key School may have a unique advantage over schools who must redesign around the ideas of MI rather than start fresh. It may be easier to penetrate the culture of teacher isolation because teachers in the Key School have elected to work in this environment.

This reform strategy has obvious links to PPSs, SBM, magnets, and comprehensive restructuring. The assumptions of schools are redefined around the MI theory to create schools where both teachers and students are more actively engaged. Furthermore, although currently only elementary schools have organized themselves around MI, this approach shares elements of an occupationally structured high school. Students at the Key School are in "majors" or specialties every day and are identified accordingly. The specialty areas are integrated into the interdisciplinary blocks. There is also an obvious emphasis on the world of work through the weekly seminars.

The Paideia Project

The Paideia Project, based on the ideas of Mortimer Adler, author of *The Paideia Proposal: An Educational Manifesto* (1982a), is housed at the University of North Carolina at Chapel Hill. Approximately two hundred K-12 pilot schools nationwide have adopted the Paideia Project in varying degrees. As with the other major reform movements—CES, ASP, and SDP—this too has a national network and training center. The national center is responsible for establishing model schools, directing professional development, and providing technical assistance for the Paideia schools (ECS, 1991). Schools can elect to implement the principles school-wide or as a school-within-a-school. At the school site, teachers are trained in the Paideia principles. At many schools, the staff participates in weekly seminars that are identical to those in which students participate.

As with other reforms mentioned in this section, the Paideia Project is centered primarily on the cognitive science learning philosophy. Similar to both the Key School and ASP, the Paideia Project believes in a common education for all. The Paideia-defined general education does not include electives or vocational courses since Adler (1982a) is opposed to occupational preparation prior to high school graduation and to tracking students as either "educable" or "trainable." Adler states, "The worst cultural disease that is rampant in our society [is] the barbarism of specialization" (p. 20).

As with other reforms, Paideia schools adhere to a set of guiding principles:

- All students are educable and therefore deserve the same quality of education, not just the same quantity.
- The quality of schooling to which they are entitled is what the wisest parents wish for their own children, the best for the best being the best for all.
- Schooling at its best is preparation for becoming generally educated in the course of a lifetime, and schools should be judged by how well they provide this.
- The three callings for which schools should prepare all Americans are (1) to earn a decent living, (2) to be a good citizen, and (3) to make a good life for one's self.
- The primary cause of genuine learning is the activity of the learner's own mind, sometimes with the help of the teacher functioning as a secondary cause.
- The three types of teaching that should occur in our schools are didactic, coaching that produces skills of learning, and Socratic questioning in seminar discussions. (The Socratic seminars used in CES are a focal point for the "essential questions.")
- The results of these three kinds of teaching should be (1) the acquisition of organized knowledge, (2) the formation of habits of skill in the use of language and mathematics, and (3) the growth of the mind's understanding of basic ideas and issues.
- Each student's achievement of these results should be measured against that student's capacity to learn and not related to the achievement of other students.
- The principal of the school should never be a mere administrator but always a leading teacher in the school, cooperatively engaged with the school's teaching staff in planning, reforming, and reorganizing the school as an educational community.
- The principal and faculty of a school should themselves be actively engaged in learning.
- The desire to continue their own learning should be the prime motivation of those who dedicate their lives to the profession of teaching.

Three types of teaching and learning are at the heart of the guiding principles: (1) acquiring information; (2) developing habits of performance (or "know-how"); and (3) becoming enlightened or understanding better what students already know and appreciating more deeply what they have already experienced. These three types of learning demand specific types of teaching. In the first phase, acquiring knowledge, Adler (1982a) recommends didactic teaching using textbooks, manuals, and the usual teacher as lecturer. In the second phase, performance, teachers must act as coaches in the same manner that is used in sports or advocated by CES. Students attend one eighty-minute lab per subject every week where they participate in coaching situations concerning the material acquired in the didactic sessions, either individually or in groups. The third type of learning requires Socratic seminars—a method of questioning and discussing the essential elements from the previous two phases. One day a week, students attend a seminar for eighty minutes. They sit around a large table and discuss the great works of literature, history, and science.

Although there are no real electives, students are required to take physical education and develop basic manual skills in cooking, sewing, carpentry, and the operation of all kinds of machines. Also, in the last two years of high school, students are introduced to the world of work and its range of occupations through a seminar (Adler, 1982b).

In a New York school, the science classes are run the following way. First, the class reads the original texts of famous scientific writings. Next, whenever possible, the original experiment is recreated in class. In the last step, the students discuss in small seminar groups the central important questions surrounding the previous two steps. This sounds like the ideas of Sizer turned upside down. Instead of leading a particular lesson with essential questions in Paideia schools, these questions are discussed at the end when students can appreciate the subject more deeply. The Paideia process sounds similar to the methods used in schools with project-based or active learning classrooms. Students need background information to complete a project which is most easily disseminated through a simple informational processing method. The background knowledge can later be applied to more advanced projects (Kramer, 1991).

University High School in Prince George's County, Maryland, is another example of a Paideia school. This school houses three schools-within-a-school: a center for the visual and performing arts, a vo-tech center, and a comprehensive high school. The three schools-within-a-school are unified into one high school through the Paideia philosophy.

The school follows the traditional school structure as advocated by Adler—lectures, seminars, and labs. Together they comprise a modified high school schedule. Because the lab and seminar classes are each two periods long, the schedule resembles a block schedule, similar to the block schedule of CES. University High credits Paideia with transforming the school's organizational climate, staff morale, and management structure (Brown, 1991).

According to a recent study of the Paideia Project, six areas are crucial for successful implementation: (1) Classroom implementation: How does one organize the physical environment? How does one fit the Socratic seminar into the schedule? What are the different types of seminar models? (2) Public relations: How does one successfully sell the program to teachers, principals, superintendents, parents, and parents of academically gifted children in the community? (3) Teachers: What are the characteristics of Paideia teachers? How much initial training is required? How much follow-up? (4) Students and parents: Is parent involvement required? Is heterogeneous grouping of students necessary? (5) Administration: What are the extra costs? How is the scheduling accomplished? Is it essential to have seminar rooms and coaching labs? (6) Future: What is the effect on student performance? What will parents' expectations be when their children move to the next grade level? (Kanoy, 1992).

An advantage of the Paideia project is its effect on teachers. Because the school is in many ways centered around the great works and great discussions, teachers must work with their colleagues, must constantly learn in collaboration with their students and other teachers, must include more active learning, and must participate in training of the Paideia methods. In an evaluation of the project (Kanoy, 1992), a majority of the respondents stated that the seminar training has improved their Socratic teaching techniques, their communication and listening skills, their ability to express opinions logically and concisely, and their ability to evaluate differing opinions. Paideia training is also credited with helping them develop collegial relationships, improving their ability to lead discussions—they were better able to stimulate thinking and involve timid class members.

The following elements have shown improvements in Paideia schools: school atmosphere, teacher attitudes, curriculum, teaching time spent on active learning, staff development, attendance, and student reading and writing time. The evaluation for students showed significant improvements in students' attitudes toward themselves, their schools and teachers, and their willingness to act independently of others (Majeske, 1991). On the other hand, it is not clear to what extent teachers participate in running the school, as with PPSs and SBM. The Paideia reform may be less comprehensive than other approaches discussed so far because it does not question the basic assumptions of our schools; rather, it redesigns the curriculum around the Paideia emphasis. Although there are examples of interdisciplinary seminars, Paideia seems to focus mostly on the curriculum as isolated disciplines. One teacher articulated several weaknesses of the program: the seminars contain too many students; students arrive inadequately prepared to participate in the seminar; too many students read below grade level; insufficient foreign language and ethnic readings are available in the seminar; and too few parents participate.

Outcomes-Based Education

Outcomes-Based Education (OBE) originally started as a microcurriculum and instructional approach and is now evolving to a more comprehensive approach involving the entire high school (Spady & Marshall, 1991). OBE is often called mastery learning, outcomes-based instruction, or the outcomes-driven developmental model. Despite various names, these approaches are founded on the same premises: (1) All students can learn and succeed but not on the same day in the same way; (2) success breeds success; and (3) schools can control the conditions of success.

OBE begins with the premise that if schools are to control the conditions of success, they cannot be organized or defined by the calendar. Currently, decision making, curriculum planning, instructional and administrative operations, institutional arrangements, student certification and graduation systems, student opportunity, and eligibility are determined by a nine-month time frame. As a consequence, the calendar-driven model favors curriculum coverage over student mastery (which is also a common complaint of CES). Accountability in a bureaucratic model is a question of covering curricular *objectives* and not monitoring whether the students mastered the objectives. In a bureaucratic system, student test results are a reflection of teaching time more than the actual capabilities of the students.

OBE is not a program but rather a way of designing, developing, delivering, and documenting instruction to ensure student learning and not mere seat time as a prerequisite for graduation. OBE advocates favor a reorganization of schools around student mastery and away from bureaucratic norms. In an OBE perspective, schools begin with the exit outcomes they desire for all graduates and then work backwards to construct the curriculum.

OBE pedagogy emphasizes active modeling, an expectation of success, intensive engagement, assessment, and frequent feedback. OBE advocates recognize that all students learn at their own rates and argue that schools must be able to accommodate individual differences. Instructional delivery systems need to be organized with the ability to vary the length and sequencing of instructional opportunities to meet all educational needs (Spady & Marshall, 1991). For teachers, OBE means adhering to the following guidelines:

- Clarity of focus on outcomes: Each lesson, unit, and course must be explicit about the goals of the learning experience and the criteria for evaluation. Students must be clear where they stand in relation to these objectives and not to each other.
- Expanded opportunity and instructional support: Teachers need to provide second chance instruction and extra time to improve performance based on the objectives students have not yet mastered.
- High expectations for learning success: Schools and teachers need to match the belief that all students can learn with practice and policy. For example, in many OBE programs, the only awarded grades are As and Bs. Students are required to work on course objectives until they perform at this standard. Students who perform below the benchmark receive a grade of incomplete for the course.

Utah has implemented OBE in many of its districts. They recently conducted a study to assess the level of impact and effectiveness of OBE. The most frequently cited improvements attributed to OBE were curricular alignment, teacher cooperation and teamwork, use of state core curriculum, instructional quality, improved student achievement, increased student initiative and responsibility for learning, better study habits and use of time, and improvements in student attitude and cooperation (Applegate & Evans, 1992).

Other reports about OBE are less positive. Drake High School in Marin County California is experimenting with OBE Spanish classes. They are having trouble penetrating the strong student culture of passivity and mediocrity. Students seem unwilling to take advantage of the second chance instruction. After the first semester, Drake's staff will be dropping some students who did not receive a B or higher simply because the students are not willing to spend the extra time needed to achieve mastery. Some students who seem to be trying but are not making the B cut-off will be placed in a special remedial program for the second semester. If they do not reach mastery by April, they will receive an incomplete for Spanish 1.

In addition to the difficulty in penetrating the student culture, Spady and Marshall (1991), the founders of OBE, argue that many current OBE practices are really not much different than the traditional curriculum-based objectives model. Despite the fact that teaching staffs are encouraged to think about student outcomes first, for many teachers, curriculum precedes outcomes in the design process. In addition, tests are still being limited to units or small segments of instruction. The content and structure of the curriculum remains as it did before because it is rarely driven by exit outcomes for graduation. OBE in practice rarely addresses the traditional structure of schooling despite attempts to move away from a calendar-driven instruction.

Another branch of OBE, Transformational OBE (TOBE) is attempting more comprehensive implementation. In addition to eliminating reliance on the school calendar, TOBE advocates propose transforming other parts of the system to equip all students with the knowledge, competence, and orientations necessary for success. Outcomes for a TOBE school are not simply current curriculum objectives as in OBE but are future-oriented, life role perspectives. TOBE schools are created with strategic design teams which thoroughly examine and synthesize the best available information about the conditions students are likely to encounter in the future. They then design the school around the acquisition of this knowledge using the following components: (1) cross-curricular approaches to curriculum structure, instructional delivery, outcomes, and assessment; (2) curriculum structured across age groupings, providing learning, assessment, and credentialing opportunities; (3) cooperative learning to foster learning success for all; and (4) collaborative structures for curriculum planning, instructional delivery, and student learning.

Here are some examples of TOBE objectives for students from the Aurora Public School in Colorado. The school is now in the process of framing the curriculum and performance indicators around these goals:

- To produce collaborative workers who use effective leadership and group skills to develop and manage interpersonal relationships within culturally and organizationally diverse settings.

- To foster quality producers who create intellectual, artistic, practical, and physical products which reflect originality, high standards, and the use of advanced technology.

A school district in Wyoming is in the same stage as Aurora, modifying the curriculum and performance indicators around outcomes. They have divided the staff into groups—one for each performance outcome. Each design team is responsible for determining

- the essential learning components of the goal that must be developed to ensure student competency,

- the instructional methods and appropriate learning context, and

- the performance indicators and assessment strategies.

There are a few schools that Spady refers to as transitional schools, whose approach to OBE falls somewhere between the traditional and transformational approaches. These schools are primarily concerned with students' capabilities at graduation. Transition schools set out to decide the most essential elements for students to know, be able to do, and be like in order to be successful once they have graduated, then decide the curriculum and assessment to achieve these outcomes.

Arlington Heights, Illinois, and Johnson City, New York, are two pioneering examples of the transitional approach. Arlington Heights has adopted the following high school exit outcomes for all students: (1) the ability to communicate with reading, writing, speaking, listening, and numeracy skills; (2) facility in social interaction; (3) analytic capabilities; (4) problem-solving skills; (5) skill in making value judgments; (6) skill in creative expression and responding to the creative work of others; (7) civic responsibility and awareness of the global environment; (8) wellness; (9) technology; and (10) life and career planning.

To achieve mastery of these exit goals, students are expected to proceed through three levels of achievement. Level 1 involves the development of a knowledge base related to the outcome; Level 2 includes the demonstration of practical applications of the outcome; and Level 3 reflects the ability to transfer their learning to new situations (Fitzpatrick, 1991). These levels are remarkably similar to the three phases of the Paideia Project. The OBE achievement levels correspond to three different instructional roles for the teachers. The students will need direct instruction in Level 1, coaching in Level 2, and guidance and facilitation in Level 3.

Johnson City has developed a set of exit outcomes similar to those of Arlington Heights. They have also developed an implementation model called the Outcomes-Driven Developmental Model (ODDM), similar to ASP's Inquiry Process for Change that is being utilized by hundreds of schools around the country. ODDM is a master plan to guide improvement of all facets of the school in order to restructure it around exit outcomes. To ensure successful implementation, schools must implement twenty components in four categories: (1) general, (2) administrative supports, (3) classroom supports, and (4) community supports (Johnson City Central School District, 1991).

1. General components

   - Research literature: All decisions must be in accordance with the best research.
   - Mission: All members of the school community must understand and agree on the mission.
   - Student outcomes: Each school must adopt a set of student exit outcomes.
   - Philosophical base: Each school must arrive at a set of philosophical principles that will guide all actions and decisions (e.g., learning rate and learning styles).
   - Psychological base: All schools must come to an understanding of human behavior and needs.
   - Transformational leadership: Utilize people who can create a compelling vision of what can and should be and who can empower others to do so.

2. Administrative supports

   - Staff developmental model: Redesign to create a vehicle to systematically and continually improve and renew the staff.

   - Change process: Understand how people and organizations change, and create a process.

   - Problem-solving process: Develop a systematic process that is understood and endorsed by all.

   - Climate improvement model: Develop a model for monitoring and improving climate.

   - Management model: Utilize a model that satisfies psychological needs.

   - Communications network: Create a network that promotes the flow of information and ideas throughout the school community.

3. Classroom supports

   - Instructional process: All schools must arrive at an instructional process that incorporates the best that is known about teaching and learning.

   - Curriculum organization: The curriculum must be organized around exit outcomes.

   - School practices: The school must forge agreements on the certification of student learning, the use of time, and the assignment of students to groups.

   - Organizational structures: The schools must reorganize around the learning philosophy.

4. Community supports

   - Board policy and support: Board policy should be in line with the best research and be made with the collaborative effort of the district.

   - Public: All schools need to be trained on how to cultivate public support.

- Networking: All schools will receive training on how to engage in effective networking with other ODDM users.

In OBE, everything schools do must focus on whether students are learning or not. OBE, especially TOBE, has implications for teacher professionalism. By redesigning schools away from the calendar, curricular objectives, and bureaucratic accountability and toward a focus on student outcomes, teachers are encouraged to be more student-centered and professionally accountable for student learning. A student mastery focus provides teachers with opportunities to make discretionary decisions about improving student outcomes.

OBE places demands on students, too. Students must do more than just pass in order to be promoted. They must first achieve a certain level of understanding. The OBE model assumes that low expectations explains why many students have not been achieving and further assumes that as soon as the school requires all students to make grades of B, they will. OBE could therefore create substantial cultural changes in student behavior, away from the current passivity and "milling" around toward creating students with purpose, focus, and responsibility.

Many elements of OBE are comparable to those of CES and Paideia. Like CES and Paideia, OBE emphasizes active learning and performance outcomes. However, if OBE fits within the traditional school and is not transformational, the learning style and curriculum may still resemble the behaviorist/associationist viewpoint. In addition, the ODDM model for change provides a good lesson for efforts to coordinate the integration of vocational and academic education, but the remainder of the model may merely be an example of first-order change—or tinkering within the traditional model of schools.

Connections to the Integration of Vocational and Academic Education

So far, few of the efforts to reform academic education have incorporated any occupational concerns—though the future orientation of OBE and the recognition in the Paideia Project of the need to prepare students for the "calling" of earning a decent living come the closest. With the possible exception of the Paideia schools, the common thread among the efforts to reform instruction is that they shift from methods we have called "skills and drills" to those based upon "meaning making," with more student-centered, project-based, "contextualized" approaches in which teachers act more as facilitators and interpreters than as didactics and in which students must take more active roles in their learning (Grubb et al., 1991). The curriculum shifts have by and large been efforts to integrate the fragmented curriculum by undoing the disciplinary boundaries that have grown up over time and by helping students see the connections among subjects. The details differ, of course, as does the thoroughness of the various approaches to curriculum and instruction, but the basic intent is to replace the approaches to teaching that have dominated American education since its inception.

But these are precisely the goals of the best efforts to integrate vocational and academic education. By definition, of course, such efforts try to integrate parts of the curriculum that have been kept independent, clarifying the occupational relevance of academic subjects as well as the potential for vocational subjects to lead back to the academic disciplines underlying them. Particularly in schools where vocational and academic teachers have collaborated actively, one consequence has been to transfer the teaching methods commonly associated with vocational education to academic instructors. A greater reliance on cooperative learning (where students work in small cooperative teams), on project-driven approaches and discovery methods, on student-directed activities and student participation rather than teacher-dominated classrooms, on learning in a specific context rather than decontextualized learning, and on the teaching of generic skills (Stasz, McArthur, Lewis, & Ramsey, 1990) have always been more common in vocational education, so efforts to integrate vocational and academic education have the potential to change teaching methods in ways consistent with most other current reforms.

If there is a difference between the reforms summarized in this section and those that occur when vocational and academic instructors collaborate, it is that integrating vocational subjects specifies a particular way of contextualizing teaching and of creating projects for students to work on—ways linked naturally to the occupations which students see around them and to which they may aspire. The integration of occupational concerns into the reform of teaching therefore provides a natural way of linking schools with students' futures rather than continuing to pretend that high school has nothing to do with the adult responsibilities all students will face.

SCHOOLS OF CHOICE

The choice movement points to school bureaucracy as the villain in school dysfunction. Bureaucracy smothers schools in red tape and narrows their attention to compliance issues, making it difficult to respond to individual needs and student outcomes. Choice mechanisms seek to give power to parents and students—the consumers—to choose among schools because the responses to these choices (rather than to bureaucratic requirements) can lead to school improvement under the right conditions.

There are many arguments in favor of school choice. At this point, the arguments are primarily theoretical because very little is known about how choice works and what its effects might be (Howe, 1992). Still, there are a variety of hopes that choice can be a vehicle for reform.

The practice of choice was first introduced as a method of encouraging voluntary desegregation and discouraging active resistance to court-ordered desegregation (Metz, 1986). Second, it has also been promoted as a means for enhancing the responsiveness of education to the concerns of those it serves (Finn, 1990). Third, choice has been promoted as a catalyst for change, as a "lever to introduce innovation" (Metz, 1986). Fourth, Murnane (1986) argues that school choice will make it possible to match student interest with the program characteristics best suited to an individual student. This is an argument against the shopping mall high school—schools attempting to be all things to all people. Murnane assumes that there is no such thing as one best school for all students and that decision making should be moved from the "greater societal level" to the individual level—that is, to parents. Fifth, by creating a school composed of students, parents, and school staff all with the same values, teachers will be more committed, parents will be more supportive, and students will perform better (Association for Supervision and Curriculum Development, 1990). Finally, choice is advocated as a way to extend the opportunity of choosing to poor families; currently only wealthy families can afford to attend private or parochial schools or to relocate to neighborhoods with better local schools (Fliegel, 1990). However, curriculum has been virtually overlooked in the discussions of school choice (Chubb & Moe, 1990).

School choice plans are being implemented or considered in thirty states (Rosenberg, 1989). School choice was a cornerstone of former President Bush's national education strategy, America 2000, which has been endorsed by the National Governors' Association (NGA). With choice in the national vision, it would not be surprising to observe more states jumping on the "choice" bandwagon. It would be deceiving, however, to imply that states are adopting uniform school choice plans. There are, in fact, five main types of school choice programs.

Voucher Mechanisms

This term was first used by conservative Milton Friedman in 1962 when he proposed a system of publicly financed educational vouchers. He argued that a voucher system would award students the equivalent of tax dollars to be applied toward tuition at public or private schools of their choice. The federal government experimented with such a system in the late 1960s when the Office of Educational Opportunity sponsored a regulated voucher system demonstration project in Alum Rock, California (Elmore, 1987). The researchers of the Alum Rock experiment found no conclusive results; achievement gains were not found. All races and classes expressed awareness of choice, and the evidence showed that racial balance slightly improved (Clewell & Joy, 1990).

Despite these pallid results, current advocates argue that subsidizing parents instead of schools most effectively furthers the states' interest in education. Opponents assert, however, that allowing parochial schools to participate in voucher schemes would violate the establishment clause of the first amendment (Buchanan, 1987). Milwaukee has passed state legislation, the Milwaukee Choice Plan, that permits parents to select private schools, funded by state aid reimbursements, provided students meet low income guidelines. The legislation has been challenged by the Wisconsin Educators Association Council and the NAACP, among others. The court ruled the program did not violate the Wisconsin Constitution (Peterkin, 1991).

Interdistrict Choice

This choice plan allows students to cross district lines and attend other public schools but not private schools. Most of these plans were motivated by court-ordered desegregation, so most regulate choice on the basis of their racial impact. Interdistrict choice is usually expensive because states and cities have to assume the financial burden of transportation. In past experiments, interdistrict choice resulted in a one-way migration from the cities to the suburbs. In addition, although white suburban schools volunteered to accept urban minority transfers, they excluded those with discipline problems, special needs, and less motivation or talent (Rosenberg, 1989). Evidence has also shown interdistrict choice plans have not worked well because they tend to depress the quality of neighborhood schools by "creaming" model students and placing them in the suburbs (Clewell & Joy, 1990).

In 1987, Minnesota passed legislation permitting parents to send their children to any school in the state. The legislation stated that money would follow students to their new school, with the only restriction being that transfers could not increase racial segregation. One major criticism of this plan has been that transportation is not provided. This means that the children left behind are undoubtedly poor, minority, and learning disabled. So far, few students seem to be taking advantage of the opportunity to transfer. However, parents have reported that their complaints are being taken more seriously by school administrators.

Intradistrict Choice

This plan provides students the opportunity to attend any public school within a district. Controlled choice and magnet school options are currently the most often advocated types of intradistrict choice programs. These options generally involve efforts to promote diversity through the creation of unique and distinctive schools.

Controlled Choice

This plan *requires* students to select a school to attend anywhere in the district. As with interdistrict choice, there are usually restrictions; for example, individual choices may not be allowed to upset the racial balance in a school. This type of school choice also tends to be expensive because of transportation costs and costs for disseminating information about the schools so parents can be fully informed. This information must be made available to parents no matter what their native language is. In some cases, parents must be actively encouraged to exercise their choice.

Despite these restrictions, choice is an attractive option for a number of reasons. First, it decentralizes the system, affording parents the same sense of ownership teachers acquire through SBM (school-based management). It affirms individual diversity, not standardization, and encourages schools to create specialization. This may free schools from the burden of providing uniform, standardized education for students with varying interests. In addition, it pushes the school system in the direction of outcomes-based accountability. However, it is not clear how the classroom level of schools or the roles and relationships among teachers, administrators, and parents change as a result of choice mechanisms. As a consequence, it is difficult to know how choice relates to the other models of reform, particularly those that stress teachers professionalism and reformed instruction.

Many of the intradistrict choice schools are attempts to create new schools from the ground up. This is how the well-known Central Park East Secondary School (now part of the Coalition of Essential Schools [CES]), as well as other innovative programs in East Harlem, New York City's District 4, got its start. There are now fifty programs in twenty-three buildings which have been so successful that they draw students from outside the district who might otherwise attend private schools. The fifty schools range in theme from the Jose Feliciano School for the Performing Arts and the Academy of Environmental Sciences, to the Isaac Newton School for the Sciences and Mathematics. The program is viewed as successful because teacher morale is high, visitors report the hallways are orderly, vandalism and truancy are down significantly, and test scores have risen dramatically (Paulu, 1989). It is not clear whether schools in districts that have been turned into choice districts (e.g., Montclair, New Jersey, and Rochester, New York) have redesigned themselves to the same degree as Harlem. One crucial issue is the motive behind implementing a choice system since some have concentrated on racial desegregation while others have emphasized school improvement; the two goals are not necessarily consistent.

In its experiment with controlled choice, Boston has learned lessons that may shed light on this question. First, the assignment procedures must be perceived to be fair and provide safeguards against manipulation. Second, there must be an effective effort to provide all parents with adequate information, including counseling about options in their native language. Third, there must be planned interventions to help schools that are not attracting students. It cannot be assumed that schools will naturally begin examining their weaknesses and pinpoint a remedy. With this structure, Boston's plan is an attempt to address goals of both desegregation and school improvement (Glenn, 1991).

So far, the Boston schools have found their assignment procedures quite successful. Unfortunately, the same optimism cannot be attached to the dissemination of information. Although there was sufficient information and staffing at parent information centers, effective individual counseling was needed to help overcome the lack of experience urban parents have in making decisions about schools. In addition, parent information can only be meaningful to the extent that the choices available are consistent with parents' values. Planned interventions worked well with the new district emphasis on school-level decision making. The eighteen "vulnerable" schools were allowed to submit single-page proposals for a variety of state and federal programs. They were also encouraged to seek waivers. In addition, the Boston/Chelsea team developed a catalogue of restructuring models to serve as prototypes to help schools (Glenn, 1991).

The Boston example provides insight about the possible dysfunctions of a choice system. First, in school districts with large numbers of low income, minority, and low-achieving students, school choice has almost always functioned to increase their isolation because their parents fail to choose. Second, to the extent schools of choice are granted discretion in selection processes, they almost always choose high-achieving or well-behaved students and avoid at-risk students. Third, to the extent that choice motivates change in neighborhood schools, this change is almost always focused on attracting high-achieving students, not on school improvement (Moore, 1990).

Magnet Schools

Magnet schools are selective schools with specific vocational or academic focuses. They were first introduced as competitive high schools in the 1950s when students were admitted through a highly selective process. In the 1960s, they were used as alternatives to forced busing to lure whites out of the suburbs and into the cities. More recently, magnet schools have appeared in the nation's largest districts as a reform strategy to better meet the diverse needs of all students. Some districts (e.g., Kansas City) have converted every school, not just isolated schools within the district, into magnet schools. As with controlled choice, magnet schools are careful to ensure racial and gender balance.

From the 1970s to the early 1980s, the federal government was instrumental in encouraging the development of magnet schools as vehicles to voluntarily desegregate schools (through the Emergency School Aid Act [ESAA] grant money). Schools were considered magnets if they offered either a specialized curriculum or pedagogy as a selling point to attract students. Recently, both the supply of and demand for magnet schools has increased. A recent survey carried out in large urban districts nationwide estimated that magnet school enrollment has increased on the average of fifty percent, including about twenty percent of high school students in these districts (Blank, 1989).

With the increasing number and variety of magnet schools, it is difficult enough to establish a consistent definition let alone know what is going on inside them. Districts use the term freely and broadly to describe both schools-within-a-school and whole-school magnets. In reality, very few of the alleged "magnet" schools are school-wide. Miami-Dade County schools advertise forty-five magnet schools when in fact only twelve are school-wide. In Houston, eleven out of twenty-two high schools have schools-within-schools, while only two schools have school-wide magnet programs. The term magnet is also used to cover specialty schools with many different types of focus—occupational, curricular, and pedagogical.

At the same time, a whole host of schools that outwardly fit the definition of magnet schools have not been labeled as magnets. For example, Chicago has the following types of schools that fit the definition but are not called magnets (Gnaedinger, 1989):

- Vocational schools: Three schools provide career training for immediate entry into the job market.
- Technical schools: Two schools offer a college preparatory curriculum in mathematics, science, and technical subjects.
- Metropolitan schools: Seven schools combine in-depth core curriculum with instruction in a specialty area.
- Magnet schools: Two schools with one or more programs focusing on a specific area.
- Career and college preparation: Thirteen programs prepare students for careers in a variety of fields.

- Business programs: Five schools train students for entry-level jobs or career-oriented programs, including specialized courses related to the areas offered.

The research on magnet schools has produced mixed evidence. On one hand, magnet schools seem to have been successful in achieving racial balance. Yet, at the same time, magnets have been criticized for not providing equal access to all students, which defeats the purpose of desegregation. Selective magnets have been especially criticized for creaming top students from other schools, which weakens nonmagnet schools in the district. Even in the best-designed systems that appear outwardly to have a racially balanced student body, there is no guarantee that class-by-class resegregation is not occurring through tracking policies (Clewell & Joy, 1990). A study of the magnet schools in Boston, Chicago, New York, and Philadelphia (Davenport & Moore, 1989) found the emergence of a five-tiered system of schools in all the cities except Boston. They argue that magnets were used to foster a new form of segregation by social class and previous success in school. They suggest the system needs to be much better regulated to prevent such occurrences.

In terms of improving student achievement, magnet schools tend to report average student test scores that are higher than district averages. This is not surprising since students in magnet schools usually represent a select population (Rosenberg, 1989). Even nonselective magnet schools tend to include the more motivated student population; but the only way to assure that magnet schools are teaching their students more would be to run a pretest/posttest experiment with a control group (see Crain, Heebner, Kiefer, & Si, 1992, where the authors statistically analyzed the lottery admission process and measured the effect of career magnet schools on ninth-grade performance).

Despite difficulty over definition, the magnet schools in Miami; San Diego; Louisville, Kentucky; Houston; Dallas; Rochester, New York; Atlanta; Detroit; and the state of Connecticut have been analyzed. These districts differ in several ways. First, some have a few magnet programs while others have turned the entire district into magnet schools (e.g., Kansas City). Second, some districts have initiated programs using federal desegregation monies while others (such as Dade County) are implementing magnet programs as a school reform strategy to improve school effectiveness.

Third, districts are using many different types of magnets: (1) school-wide magnets with a special pedagogical delivery system; (2) school-wide magnets with majors; (3) school-wide magnets with various kinds of curricular integration, including integration through an occupational focus, integration through community development, integration through a technical area or single discipline, integration through a school theme, and integration through college prep courses; (4) schools-within-schools, including schools with many magnets within one school such as career clusters or career academies, or small school-within-a-school magnets; (5) schools which handle a specialized curriculum and send students to a regular comprehensive high school to take core subjects; and (6) vocational, trade, or technical schools.

The limits of this paper confine the analysis to school-wide magnets within the districts of Miami, San Diego, Louisville, Houston, Dallas, Rochester, Atlanta, Detroit, and the state of Connecticut and includes (1) schools with a special pedagogical delivery system, (2) school-wide magnets with majors, and (3) school-wide magnets with various levels of curricular integration. As with other approaches, the examples range from those schools instituting marginal changes to those essentially redesigning themselves. This distinction may exist because of the emergence of a new purpose of magnet schools—a model of school improvement—rather than desegregation. In either case, the school focus is seen as the leverage point for fixing the schools. The focus of this analysis will be on how magnet-like the examples are, meaning how much the theme of the magnet provides a focus for the school. The degree of integration of vocational and academic purposes (in the case of magnet schools with occupational themes) is a clue to the degree the magnet theme has been internalized by the school, at least at the program level. This analysis will also include program selection procedures and, when possible, changes in the curriculum and in the roles of teachers and students.

Schools with Unique Pedagogical Purposes

Every district in this analysis has at least one school designed around a unique pedagogical purpose not usually found in traditional public schools. The districts sometimes refer to them as magnet schools, but more often as alternative schools for students who did not fit the mold of traditional schools. For example, the Brown School in Louisville, Kentucky, offers multi-age and multi-grade groupings, community experiences, and a child-centered instruction that enhances a self-directed learning style. Student input in the learning and teaching process is encouraged. Students in these schools work on long-term projects either individually or in groups, and the community is used as an extension of the classroom.

The Brown School is similar to Detroit's Community High School, or the Open School, and to Rochester's School without Walls. (The School without Walls is also a member of CES.) Given the similarity with CES, it may be safe to assume the roles for teachers and students change in ways similar to these schools. Most of the subject matter is organized around a theme using an interdisciplinary approach. None appear to integrate across vocational purposes with the exception of Detroit, where themes such as urban math, science and technology, and economics of urban living are used. However, the School without Walls does bridge the connection to the students' future by requiring individual career exploration projects every semester (Corryn & Cason, 1991).

All schools in this example offer open enrollment. Students must fill out an application, but admission is not based on test scores or grade point average. This type of school usually attracts students that want a more self-directed, hands-on learning environment.

School-Wide Magnets with Majors

Every district examined, including Rochester, Pittsburgh, San Diego, Louisville, Houston, Dallas, and Kansas City, has schools with occupational majors. Schools offer a certain focus based on the title of the school: education and social services magnet, computer science magnet, arts magnet. For the most part, schools with occupational focuses register students for the core curriculum. Students take one elective in the specialized area every semester of their high school career. These examples have the potential to mirror the best examples characterized in *The Cunning Hand, the Cultured Mind* as having a school-wide specialization or focus, preparing students for a range of occupations, having sequences of courses for focus and cohesion, having a reduction of tension between vocational and academic departments through teacher collaboration, providing students with connections to the future, and providing broader educational opportunities. In most of these examples, however, the schedule remains unchanged. There does not appear to be any curricular integration at the program level, and courses are not particularly sequenced to provide cohesion. It is difficult to tell if and how the teacher and student roles change and if the curriculum and pedagogy are altered at the class level.

An exception to this may be Kansas City where the entire district has been restructured into magnet schools. Teachers have been allowed to select the school in which they want to teach. They were allowed to participate in the planning process if they so desired and each school received funding for ten staff development days to organize the entire staff. School planning documents specify that students in a school can be as involved in the theme as they would like. At the very least, they must take one elective course per semester. Because of the way they were redesigned, there is a greater chance that each school has developed a culture focused on its major area (Hale & Levine, 1986).

Unique and Curricularly Integrated Magnet Schools

Schools in this category appear to have a great amount of integration across subject matter and an authentic magnet-like quality or focus. With the exception of the selective college-prep magnets, these are perhaps the only real magnet schools because they most closely match the definition of a "focus school"—schools with clear missions and educational purposes and worthy alternatives to the chaos of the conventional high school (Hill, Foster, & Gendler, 1990). Not surprisingly, these schools are either new creations from the ground up (e.g., Dade County's Saturn Schools Project) or are affiliated with CES (e.g., Louisville, Cambridge, and Chicago). For the most part, they seem to be organized around occupational purposes.

There are several examples of schools around the country that are in the process of redesigning, including the Design and Architecture High School and the Maritime, Science, and Technology Academy in Miami; Fairdale High School Academic and Technical Magnet and Seneca High School Liberal Arts Program in Louisville, Kentucky; the Writing Academy in San Diego; and the Environmental Sciences Magnet and Southwest Science and Math Magnet in Kansas City. All these schools, despite their differences in focus, share many features that may contribute to their classification as real magnet schools (Dade County Public Schools, 1989a, 1989b, 1989c; Demooze, 1987; Hale & Levine, 1986; Jefferson County Public Schools, 1990):

- *A well-planned focus*

  In the case of the Florida schools, the schools were selected for implementation on the basis of application proposals. In all cases, these proposals were put together by teachers, administrators, and business community advisors.

- *Committed staff*

  Not all these schools are new schools as in Dade County, Florida, but they all did start over in a sense, with selected staff as well. The Florida schools have made it a point to hire individuals for positions of administrative leadership only if they were experts in the focus of the magnet; they believe that everyone in the school, not just the teachers, should be curriculum experts.

- *Substantial community support*

  The community supports the magnet with either financial contributions, donations of time, or future jobs for the students. This seems to be a particularly strong feature of the Florida schools. For example, the Maritime school has thirty-two partners that participate in advising and provide audiovisuals, field trips, financial support, scholarships, internships, speakers, and teacher training. In the case of the Design and Architecture High School, professionals from the design field (located in the heart of the city's design neighborhood) volunteer their expertise in the classroom by helping the teachers and providing the students with mentors.

  The Rindge School in Cambridge and the Chicago Vocational High School are trying to gather community support and develop the community simultaneously. Both schools house student-run businesses in an effort to provide the community with a service as well as to expose students to all aspects of the industry, not just narrow skills (a focus of the Carl D. Perkins Vocational Education Act of 1984). In Chicago, the student-run store provides a context for much of the course content and provides natural integration among subjects.

- *Integration of vocational and academic content*

  Although all of these schools are attempting racial integration, what separates these schools from other magnets is the importance they place on integrated instruction. They support this belief by altering the traditional schedule to include larger blocks of class time to accommodate integration and an interdisciplinary approach—for both the teachers and the students. Planning time for teachers is built into their schedule as it is for the teachers of Central Park East Secondary School. For example, the students at the Design and Architecture High School have an alternating schedule among lectures, seminars, tutorials with professionals, and lab time. In addition, they spend five hours on Friday in an interdisciplinary block devoted to making the connections between the content they learned during the week. To further facilitate integration at the classroom level, teachers are provided with a curriculum guide which outlines the core concepts of each subject and ways to integrate them.

- *Teacher requirements*

  Some schools place requirements on teachers to ensure the integration of subject matter at the classroom level. In the San Diego Writing Academy, for example, teachers of all subjects are required to keep a writing portfolio of student work for all subjects. Teachers are also required to use writing as an instructional strategy. In a first year evaluation, ninety-six percent of teachers reported they were very committed to the writing academy, but only twenty-six percent had kept portfolios for seventy-five to one hundred percent of their students. Furthermore, teachers utilized writing strategies in the following ways (Demooze, 1987): learning logs (40%), summaries (58%), research papers (42%), creative writing projects (48%), and writing as a learning tool (74%).

- *Curricular themes*

  Many of the schools in this category require that courses be tied together with a theme. For example, in Florida's Maritime, Science, and Technology Academy, all courses must have a maritime theme. This is also the case in the Design and Architecture High School and in Kentucky's Seneca High School Liberal Arts Program, where subject matter is centered on one yearly theme.

- *Staff training*

  All of these schools require extensive staff training in the school's focus. In the San Diego Writing Academy, for example, the staff attends the school's writing workshops to be trained in the writing process. In the Design and Architecture High School, teachers are trained by outside design and architecture professionals.

- *Outward unifying symbols*

  To further support the school-wide focus, several schools have uniforms and special identification tags. These symbols help identify the staff and students with the community and serve to unify the school members around the school focus.

- *Audience*

  All of these schools have mechanisms for securing an audience beyond the confines of the school for exhibiting student work. The Design and Architecture High

School has a museum of student work that is open to the public in the middle of the design community in Miami; the students in the Maritime Academy author papers with their teachers; the students in the Writing Academy publish their articles in local newspapers; and the students in Chicago run a community store.

- *High expectations*
  All of these schools have various ways of setting high expectations for students and teachers. In the Design and Architecture High School, students have to present a portfolio as part of admission. While in school, they are expected to be mentored by a professional. They are also expected to compile a second portfolio prior to graduation. Once admitted to the Maritime Academy, students are required to attend summer school prior to the start of their freshman year. None of the schools in this section (except San Diego) have tracking. All students are expected to complete all of the curriculum.

- *Active, student-centered pedagogy*
  In all of these schools, a CES-type pedagogy is used.

Clearly, these schools expect more from both teachers and students. Given that these schools have been built from the ground up, have challenged the basic assumptions of education, and are operating with new roles and relationships, they represent second-order change. In addition, they appear to embody what comprehensive reforms are attempting to accomplish—the creation of "focus schools."

Connections to the Integration of Vocational and Academic Education

The efforts to develop choices for students within the public school system comes the closest of any mainstream reform efforts to the efforts to integrate vocational and academic education—particularly with the creation of academies (which are schools-within schools), of occupationally focused high schools or magnet schools, and of broad occupational clusters (Models 6, 7, and 8 in Appendix A). Such choices, whether they take the form of a school-within-a-school, a cluster, or an entire school, provide a setting and a school focus which makes collaboration across disciplines—including collaboration between the occupational teachers who give a cluster or school its focus and academic instructors—both educationally natural and logistically easy. To be sure, such structures *facilitate* collaboration and curriculum integration though they cannot *ensure* it because teachers still need to have the time and the willingness necessary for collaboration. Compared to the structure of the comprehensive high school, however, the various choice mechanisms provide settings within which the integration of occupational and academic content is more likely to take place.

RESTRUCTURING

Approach four contains schools that identify their reform efforts as school restructuring. It is possible these examples also fit into any of the three approaches already addressed, especially those proceeding from the initial point of entry to redesign all areas of the high school. Hence, the most thorough examples in each approach are very similar.

Restructuring is a relatively new conception of school change and one that means various things to various people. The term is used as a way to describe choice programs, waiving regulations, empowering teachers, partnerships, higher order learning outcomes, and school-based management (SBM). Despite this variation, supporters tend to agree that restructuring requires a fundamental rethinking of schooling to move the locus of control to the school level, to create student- and teacher-centered schools. This approach assumes that students have not been learning because of structural constraints impeding the teaching and learning process; it is a direct response to the failure of earlier reform attempts that were imposed from the outside.

According to the Education Commission of the States (ECS) (1991), there are several reasons why schools need to restructure: (1) we have new types of students with more diversity in individual needs; (2) a changing economy and increasing social problems have created new social and economic demands; (3) new research shows learning should be an active, engaging, collaborative process; and (4) the current system is not producing satisfactory results.

To create a system that can respond to these problems, it is necessary to work on what Ann Lieberman refers to as the five major building blocks of schools: (1) rethinking the curriculum and instruction; (2) rethinking the structure of schools; (3) creating a two-pronged focus on a rich learning environment for kids and a professionally supportive environment for teachers; (4) a belief in the need to build partnerships and networks with other schools, universities, community agencies, and businesses; and (5) a recognition of the need for parental and community participation. Rethinking the major building blocks depends on decentralization, which marks a departure from the thirty-year tide of centralization to create new identities, commitments, and a social order (Timar, 1989).

No two schools use these building blocks in the same way. However, most schools in the process of restructuring make changes in the processes of learning, teaching, curriculum, accountability, school organization, and decision making to create a new paradigm (Lewis, 1989; National Governors' Association [NGA], 1991). According to the NGA, most schools currently engaged in restructuring have been able to focus on only one or two areas, with curriculum and instruction being the most difficult to change (NGA, 1991).

Example One: Restructuring Schools

This section will contain an analysis of several different restructuring projects and ways they differ according to several key variables. More than others, this approach has many outside sponsors (e.g., states, professional organizations, think tanks, foundations, national centers, school districts, and business partnerships). Most of these projects are pilot programs aimed at establishing lighthouse approaches for other schools to copy. Many are state efforts such as Washington's School for the Next Century, Oregon's HB2020, California's AB1274, and changes in Arkansas and Maine. Others are sponsored by private agencies such as the AFT and National Education Association's restructuring projects or the Philadelphia Schools Collaborative (PSC), funded by the Pew Charitable Trust.

Goals

As might be expected, given the confusion around the term "restructuring" and given that restructuring is an individual school process, the goals for projects vary. The goal statements in restructuring projects differ substantially in the degree of freedom schools are given. For example, both the Washington and Oregon state pilot projects have loose requirements for participating schools. In Washington, applicants for pilot funds were required to design their own application forms using any medium or combination of media. The selection committee favored schools which addressed student educational needs in a unique way, proposed a sound method for evaluation, and contained elements that could be replicated (Office of the Superintendent of Public Instruction [OSPI], 1991). Oregon had only slightly more defined goals: the development of educational improvement goals of individual schools and school districts, the assessment of the educational progress of school programs and students, the expansion of professional growth opportunities for Oregon teachers, and the restructuring of the school workplace to provide teachers with responsibility and authority commensurate with their status as professionals (Conley, 1990).

On the other hand, Maine's Restructuring Schools Project had more fully specified requirements. Schools were required to "reexamine their school's mission and seriously consider redesigning staffing, scheduling, curriculum, decision making, instructional tasks, activities and grouping" (Cox & deFrees, 1992). The National Education Association's Mastery in Learning (MIL) project is similar. It has been designed to help teachers and principals ask important questions about schooling and to provide them with research essential to finding answers that will work for their schools. Schools are expected to probe the use of space, time, and resources and the roles of students, teachers, administrators, and support personnel.

Like Maine, Philadelphia has a specific goal statement: The overall goal for each school is to create schools-within-a-school that give students more personal attention from teachers and other adults, experiment with different approaches to instruction, and more intensively involve the communities in schools and the students in their communities (PSC, 1990). San Diego took a somewhat different approach to setting parameters. The superintendent appointed a leadership team called the Innovation and Change Leadership Group. They conducted a series of seminars for the schools, clarified the purposes of restructuring, and designed the criteria and processes for schools to become involved (Payzant, 1991; Schools of the Future Commission, 1987).

Guidelines

Just as goal statements vary in their precision, so do the guidelines for carrying out the restructuring project. For example, Philadelphia went as far as to dictate the guiding principles and requirements. School-based change means participants are to (1) divide schools into "houses" or smaller schools-within-a-school, (2) continue to develop a rigorous and integrated academic instruction using a variety of instructional approaches, and (3) stimulate dynamic relationships with institutions beyond the schools—particularly colleges and businesses. The emphasis on these relationships should be on transitions—from school to college, school to work, and school to citizenship (PSC, 1991).

In Arkansas, former Governor Bill Clinton's plan was equally specific. It is expected that schools would show structural change, experiment with performance-based assessment, and use the nine core principles of the Coalition of Essential Schools (CES). Teachers are expected to leave the classroom regularly to observe and discuss new ways of teaching. The Arkansas pilot is developing a plan for integrating statewide curriculum frameworks, student performance assessment tools, and professional development programs to support restructuring.

Oregon, Washington, and California offer more latitude in their guidelines. California's pilot project views curriculum and the creation of powerful learning experiences as the guiding principle. Schools need to be reorganized around the creation of these powerful learning experiences (California Center for School Restructuring [CCSR], 1991). Oregon and Washington did not offer many guidelines similar to those listed above but found that many of the selected schools listed the following as areas of restructuring in their application: shared decision making, experiential learning, outcomes-based education, integrated curriculum, integration of technology, staff development, teacher collaboration, curriculum development, assessment, and evaluation.

Many pilots require assurances of agreement prior to being accepted for funding. Schools/districts need to show that critical members of the school community are in favor of school restructuring. In Maine, for example, this presented a serious problem for a number of applicants. One school needed approval of the superintendent, principal, and school board and seventy-five percent of the school's teaching staff (Lewis, 1989). With the news of this requirement, the number of applicants dropped substantially. Washington, Arkansas, San Diego, and the National Education Association (NEA) schools also require evidence of community approval.

Evaluation

Several programs require schools to evaluate the pilot program. Washington's pilot requires teachers to conduct action-based research. Teachers are trained as researchers to collect and analyze data, diagnose a situation, and incorporate the results of their study in their classrooms, schools, and systems. Action research was selected as the method of evaluation because of its premise that change from within is internalized. In addition, action research provides individual investment and ownership, enhances professionalism, focuses more on the how of teaching than on subject matter, and can create links to the University of Washington (OSPI, 1991).

NEA schools have a similar evaluation requirement. Schools use observations and structured interviews to conduct an ethnographic evaluation. Teacher-documenters systematically record concerns, activities, consensus, emphasis, involvement, pitfalls, and progress. MIL even goes as far as to list interview questions for the teacher-documenters. Philadelphia also has an evaluation plan, but it is conducted by PSC.

Waivers

In several projects, the schools were allowed to request waivers from state regulations. Schools were free to create innovations to increase student performance without state regulations impeding their efforts. Washington, Philadelphia, San Diego, and Maine all granted pilot schools waivers. For example, Washington schools granted waivers for (1) total program hour offerings—basic skills and work skill requirements, (2) classroom teacher contact hours requirements, (3) minimum 180-day school year, (4) high school credit, and (5) school day as related to teacher hours (OSPI, 1991).

Curriculum

Several projects specifically state their curriculum preferences. For example, Philadelphia, in its plan for charter schools (schools-within-a-school), requires a clearly defined curricular program or an interdisciplinary theme such as health, business, multicultural, fine arts, or horticulture for each charter school. They also suggest a sequence of experiences for students—community service, apprenticeships, or college-based study—to facilitate the postsecondary transition. California's SB1274 takes a stance on curriculum that melds together many curricular approaches. For example, it encourages curriculum and instruction that is hands on, experiential, meaningful to the learner, tied to the real world, involves multiple senses (or multiple intelligences), occurs in cross-age settings, actively involves the learner, provides immediate feedback, and leads to mastery. Although these goals are stated differently, they are similar to the ideas of CES, which

Arkansas also advocates. In addition, one can detect elements of the theory of multiple intelligence and outcomes-based education.

The MIL (1992) project advocates an approach similar to California. They specify that mastery in learning implies that students will have the facility and confidence, judgment, strength, and command of knowledge and skills achieved through education. Each student will have deep understandings in several subjects, the psychological ownership of at least one area of study, and the ability to organize knowledge to solve problems.

Unlike the previous examples, Oregon does not make specific recommendations for curriculum. Eight out of fifty-one pilots suggested implementing integrated instruction. According to Fogarty's description of integration approaches outlined in the curriculum section, the efforts parallel the following: horizontal integration, where teachers sequence their lessons to correspond to lessons in other disciplines; complementary discipline units which center around a common theme for a unit of study but span several disciplines; and interdisciplinary courses, whereby the full range of disciplines in the school's curriculum are brought together (mostly in the elementary schools).

San Diego states that schools are expected to teach to student learning styles and structure schools based on what is known about teaching and learning. San Diego is also experimenting with alternative assessment to support the new curriculum and pedagogy, including the use of portfolios. They are also using electronic portfolios with money from a RJR Nabisco grant (San Diego City Schools [SDCS], 1990a).

Given the goals, overall guidelines, and curricular recommendations, the pilot efforts are redesigning schools that look similar in many ways:

- *Philadelphia*
  At Gratz High School, students are divided into clusters and stay with the same teachers for four years. The teachers have common prep periods so they can collaborate about students and across disciplines to increase personalization. Sometimes they team teach to reinforce knowledge across thematic lines. In Overbrook High School, the houses/academies are geared to various types of

students. There is a house for college-bound, one for health, and one for the at-risk (Messacappa, 1989).

- *Maine*

  A Maine middle school has divided itself into teams of teachers and students to extend for two years. They have their own budgets and the flexibility to set their own schedules. So far, they report that student involvement in learning has increased. Another school in Maine has created a series of multidisciplinary courses designed around products created by teams of students. One such course combines science, technology, and social studies to help the students rebuild the shut-down shellfish industry. This school is also in the process of creating performance-based assessment and talking to colleges about changing admissions requirements (David, Cohen, Honetschlager, & Traiman, 1990).

- *Washington*

  In one high school, the students leave school early on Tuesdays (through a waiver from state requirements) so that the entire faculty can work on restructuring activities and the development of a theme-based curriculum for each grade. In addition, Camas School District is restructuring the entire district around learning units. These learning units are integrated/interdisciplinary projects involving the students and the community. Mountlake Terrace High School is in the process of determining high school credit according to competency. Rather than being designated as freshman or sophomore, students work through three levels—entry, core, and application. Demonstration of application mastery culminates in a project (OSPI, 1991).

- *San Diego*

  As of April 1991, forty-nine schools were involved in restructuring thirty elementary and middle schools, six high schools, and two alternative schools. Schools are implementing the following types of innovations: (1) the house/cluster/ family approach to personalizing schools, where teachers work with a group of students and plan with teachers in their house; (2) interdisciplinary and thematic curricula and block scheduling; (3) the wheel approach—where students receive art, music, science lab, life skills, or vocational classes in the afternoon on a rotating basis throughout the year; (4) peer coaching techniques sponsored by PACE; and

(5) merging vocational and academic education—at Kearney High School, the magnet Center for Industrial Technology (SDCS, 1990b).

- *California SB1274*
  Pasadena High School is a member of CES. Its vision is to turn the school into five or more academic houses for ninth through twelfth graders. Within these houses, the ninth- and tenth-grade program will be different than the eleventh and twelfth. The nine and tenth grades will continue with the format, learning, and aims outlined in ***Caught in the Middle*** (California Department of Education, 1987)—a California Task Force Report that has restructured junior high schools into middle schools. The eleventh- and twelfth-grade blocks are working to alter core subjects—to incorporate experiences in the adult world, including the integration of academic and applied academic experiences, apprenticeships, and modes of inquiry that link all subjects with experiences in and out of the classroom.

  Pasadena will construct the eleventh- and twelfth-grade houses around the following characteristics:

  - Using one's mind well, utilizing the California frameworks and an interdisciplinary, inquiry-driven core curriculum. Learning will be organized by sets of essential questions central to each discipline.
  - The student as worker and learner.
  - Personalization and student advisory.
  - Authentic student engagement and assessment, including an exhibition and portfolio. In addition, no student will be allowed to graduate without a definite postgraduation plan approved by the advisor of the student's portfolio.
  - Transition to adulthood and the world of work. The eleventh- and twelfth-grade curriculum will be organized to allow students to pursue career paths while taking a sequence of courses that will prepare them either to enter a four-year college, a Tech Prep program, or work. For example, the Graphic Arts Academy is being designed so that as tenth graders, students will be exposed to a variety of jobs in the graphic arts industry. The

students will run a Junior Achievement program. In the eleventh grade, they will be required to take an advanced course at Pasadena City College. They will participate in a paid summer internship and receive a specialized diploma.

- School governance and teacher professionalism. Each house will develop its own governance system with special attention paid to the new roles of students, parents, teachers, classified staff, administrators, and the business community. The faculty attended numerous workshops, including seminars on the Socratic method (Paideia strategy), CES, the University of California Writing Workshops, the California-State Literature projects, Kagan's Cooperative Learning, the University of California at Los Angeles (UCLA) Math Workshop, the University of Southern California/LAUSI Science Workshop, and the UCLA Project for Language Minority Students.

- Partnership with the home.

- New organizational structure to create a design that will help students learn how to use knowledge, which means an integrated approach that links curriculum, pedagogy, specialized vocational training, and assessment.

Laytonville High School is also a SB1274 pilot school. It is using the grant money for research and planning because it has not yet decided on a school redesign. It is researching alternative pedagogical processes such as cooperative learning, the Socratic method, and project-based learning. Second, it will then research how to integrate the arts (fine, performing, and industrial) with the core curriculum. Third, it will investigate how technology can be infused, including video, laser disk, and CD ROM. Fourth, it is exploring potential partnerships with local and regional industries. Fifth, it has formed a task force to visit model vocational schools.

Florin High School (Elk Grove, California), like North Monterey, has not yet decided on a final redesign. In the past, it has been a part of the ASCD Restructuring Consortium. As part of this group, it implemented interdisciplinary curriculum organized by instructional divisions instead of departments. Two such divisions are the culture and literature division and the math, science, and technology division. With a grant from the Stuart Foundation, it has developed thematic interdisciplinary units. In addition, it has a business education technology and communication specialized secondary program which they claim is a great example of integrating vocational and academic education. Finally, Florin High School is using the grant to look at alternative organizational structure such as houses, schools-within-schools, and the academy model with the help of the University of California at Davis, which has been their partner in self-exploration, research, and evaluation.

Assessment

There are a few pilot projects—in Arkansas, Philadelphia, and San Diego—that recommend performance-based assessment. Three schools, by their own volition, are investigating alternative assessment in the Oregon program. For the most part, however, attention to student assessment seems to be missing, and it is troubling that schools may still be relying on standardized testing, which runs counter to many of their curriculum ideas.

Outside Linkages

As part of their programs, some pilots also require that the schools establish linkages with the community, universities, other schools, community agencies, or businesses. Washington, Arkansas, and Philadelphia all have this requirement. Examples from the Washington pilot project demonstrate the type and variety of partnerships:

- Higher education: a project-related, on-site master's program; a university-based consortium of projects (the Puget Sound Consortium described in approach one); and new models of research and evaluation, project-related dissertations.

- Business and community: mentorships and partnerships, new roles in schools, supplemental funding, and internships.

- Parents: program evaluation, parent-designed schools, and parent-developed grant proposals.

- Interagency collaboration: county health departments, Environmental Protection Agency, and department of social and health services.

Implementation

Some pilot projects specified an implementation process, others offer either technical support or guidance, and still others simply ignored this category. The MIL project is perhaps the most specific of the group. First, each school in the MIL project has a special budget designated for substitute days, a site-based consultant, and support from regional educational laboratories. In addition, NEA has an electronic network for schools to exchange ideas. Goodlad's schools and CES are also members of this electronic network.

Second, like the Accelerated Schools Program's Inquiry Process for Change, each school is required to partake in a four step process as a way to organize and define restructuring. In the first step, they develop a school profile which contains a description of the school, academic program, instructional and learning styles, and the conditions that influence learning and teaching. This profile is developed from structured interviews with staff members and establishes a benchmark to guide planning and evaluation. The second stage produces a faculty inventory describing the faculty priorities in teaching, learning, curriculum, and school climate through a variety of interactive group process procedures. In stage three, faculties implement improvement initiatives emanating from the school profile and inventory. Finally, in stage four, schools implement a plan for comprehensive change based on current knowledge about teaching, learning, and curriculum.

California's SB1274 does not specify the change process as in the case of MIL, yet it does offer a great array of material for participating schools, a sort of "do it yourself" kit. The kit contains a variety of approaches, not just one idea of how to implement the project. The funds are to be used for various activities, including release time for teachers to plan together for school-wide change, school faculty visits to other schools that are already engaged in restructuring, and training of staff and parents on the key concepts of restructuring. Funds for demonstration grants of up to two-hundred dollars per pupil are anticipated for the 1992-1993 fiscal year. The California Center for School Restructuring, located at the San Mateo County Office of Education, has been established to help the participants.

Oregon also provided monetary support for implementation. Under HB2020, monies are available for professional development activities, including attendance at workshops and conferences, planning time for curricular development, release time for peer coaching, salary for a restructuring coordinator, mini-grants for teachers and consultants, and stipends for teachers.

In Washington, schools were provided with funding for ten additional staff days, which participants have indicated as the single most valuable component of the pilot program. The individual schools were allowed to decide how to utilize these days. Not surprisingly, they used them for program planning and evaluation, peer coaching and team building, staff development, skills training, and visitations to other schools. In this pilot program, they were also provided with an electronic network for all pilot schools throughout the state of Washington. Arkansas's system of support is similar. They have also just established an academy for leadership, training, and SBM that will offer a variety of training programs.

Philadelphia's model contains the same type of support, yet it also contains support in the beginning phase of writing the proposal. In the beginning, the building-level teams attended a two-day retreat and staff development workshop on restructuring. The conference included presentations by schools that are currently undertaking the type of reform the collaborative advocates (e.g., fully restructured schools, charter schools, and ninth-grade projects). After these workshops, the schools were provided technical assistance in the writing, revision, and implementation of their proposals. This model of support for proposal writing is interesting because of the situation in Oregon: Only thirteen out of fifty-one schools listed restructuring as one of their goals in proposals for restructuring grants. Technical assistance in the preproposal phase might have helped create more than thirteen schools with comprehensive plans (PSC, 1991).

Role Changes

It is probably too early to clarify the role changes these pilot projects are creating for students and teachers. In some schools, it is probably safe to say the roles of the teacher have expanded to include researcher, member of site-based management, coach, and active colleague. The changes are likely to be similar to those of teachers implementing SBM, Professional Practice Schools (PPSs), magnet schools, and CES.

The change in the student's role may have the same degree of variance. In some schools, students are being exposed to new curricular and instructional approaches. In the California examples, students must become apprentices. Philadelphia is an interesting example because it is turning all of their comprehensive high schools into academies. It found that the magnet schools in the area were really creaming the crop and not having the problems of other schools. Consequently, a cornerstone in its plan is to create places for students within large high schools, based on student interest.

Links

There are elements of all the other approaches in each of the restructuring efforts since each tends to enhance teacher autonomy and revise teaching and most institute some choice. Restructuring addresses the deeply rooted failures of the high school: the chaos of the shopping mall high school, the disengagement of students, the ineffectiveness of conventional teaching, the isolation of teachers, and the inequities of tracking. Unlike the efforts to integrate vocational and academic education, for the most part, restructuring efforts neglect the inability of schools to help students think about future occupations and vocational consequences of educational choices and the isolation of schools from the adult worlds of business and politics. Many restructuring practices reject the shopping mall high school but do not create schools with a specific focus or link with the outside world. It is therefore unclear what mechanism creates curricula that are structured, focused, and sequenced to form a coherent whole and leave the school disconnected from the students' future.

Example Two: Restructuring with a Focus on the School-to-Work Transition

In comparison to other approaches, this category contains very few examples. However, great progress has been made in the past few years, particularly in schools which are centered on the report by the Secretary's Commission on Achieving Necessary Skills (SCANS) (1992). The first volume of the report unveils a definition of five competency areas—defined as the productive use of resources, interpersonal skills, information, systems, and technology—built on a foundation of basic thinking skills and personal qualities. The commission has since added another volume defining how the core skills are used in fifty different jobs and how they can be taught in schools. They have just issued their final report after a two year study, *Learning a Living: A Blueprint for High Performance*. In this report, they highlight paths that industry and schools will need to take to implement the commission's reforms. School reforms need to be initiated through sweeping changes in teacher-education and staff development programs that would introduce school employees to a new style of learning. The commission is working to have its ideas incorporated in a variety of new assessment and standards projects such as those of the National Council of Teachers of Mathematics, the National Council of Teachers of English, and the National Science Teachers Association. They have also recommended a separate SCANS-based competency test for both middle and high school students that would be part of a cumulative résumé showing students' coursework, extracurricular activities, and assessment grades (Harp, 1992a). The tests would be required for tenth graders to earn a Certificate of Initial Mastery, the certificate called for in the Commission on the Skills of the American Workforce's (1990) national study, *America's Choice: High Skills or Low Wages!*.

As a follow-up to the SCANS report, the House recently opened hearings on HR4078, which would create a national panel to translate work skills into academic curriculum as well as provide grants for school districts to address workforce needs throughout K-12 curricula. Republicans are also at work on a school-to-work bill based on a policy statement by the Council of Chief State School Officers that calls for state and local school-to-work plans to be required under HR4323, the Neighborhood School Improvement Act. The council seeks a national set of industry-specific work standards set by employers, workers, and educators who would also design curricula and assessment (Harp, 1992a).

An outgrowth of SCANS is the notion of graduate warranties. Under warranty policies, schools have promised to take back graduates for remediation if an employer finds them lacking in requisite skills. At least fifty districts around the county are using warranties as a way to restore confidence in business and the public, and two states—Colorado and West Virginia—are using warranties on a statewide basis. In Los Angeles, the guarantee program will be based on the detailed job competencies identified in the SCANS report (Somerfield, 1992a). The Los Angeles warranty will ensure the subject areas of math, science, reading, and writing in addition to ensuring the graduates possess teamwork, decision-making, and problem-solving skills. The district pledges to retrain at no cost to the employer any student with deficient skills (Harp, 1992b).

The Commission on the Skills of the American Workforce's (1990) study is also generating new efforts. Oregon is the pioneering state, with twelve others close behind.

Last year, Oregon passed the Oregon Educational Act for the 21st Century to restructure high schools around college and career paths. In grades nine and ten, students will take a core curriculum and receive a "certificate of mastery" after the tenth grade. The certificate would ensure that students can read, write, solve problems, think critically, and communicate across all academic disciplines at national levels. Students will then choose a college preparation program or vocational training where they will earn a Certificate of Advanced Mastery. Six state-level task forces are currently fleshing out the education and training curricula and achievement standards that will be required for professional-technical endorsement (Olson, 1992f). This act also requires performance assessment in grades three, five, eight, and ten; gives teachers more say in running the schools; and creates "alternative learning centers" for dropouts (Katz, 1991).

Ten states are joining Oregon in easing the transition from school to work: California, Maine, Massachusetts, Minnesota, New York, Rhode Island, Tennessee, Texas, Washington, and Wisconsin. They have all passed similar legislation or are in the initial stages of creating Certificates of Initial Mastery or gateway examinations and professional-technical certificates to accompany the high school diploma. In addition to these certificates, they are working to create high-quality career programs, including apprenticeships, Tech Prep programs, and programs which integrate vocational and academic education (William T. Grant Foundation, 1992). Other statewide youth apprenticeship programs are being implemented in Arkansas, Oregon, and Pennsylvania. In addition, the Council for Chief State School Officers has also awarded ten planning grants to state education agencies to design and develop youth apprenticeship programs in Arkansas, California, Illinois, Iowa, Michigan, Pennsylvania, Vermont, Virginia, West Virginia, and Wisconsin.

Jobs for the Future (JFF) also sponsors ten schools in the National Youth Apprenticeship Initiative. The Youth Initiative is built around the following principles: (1) programs must establish new and better links between employers and schools, occupational and academic instruction, and work-based and classroom learning; (2) programs must provide an opportunity for youth to advance both occupationally and academically, so they need to bridge high school with postsecondary education and provide certification of completion; (3) programs must provide entry to well-paying careers that offer both vertical and horizontal mobility; (4) programs must have widespread employer support and must respond to employer demands for skilled workers; (5) programs must be divided by a working collaboration of employers, secondary and postsecondary schools, unions, employment and training providers, and state government; (6) programs must not be add-ons to the chaotic education system; instead, they should restructure the high school to improve the opportunities for many graduates.

The role of JFF is to identify the most promising models of youth apprenticeship and work-based learning; determine the effectiveness of youth apprenticeship and work-based learning, including credentialing and assessment standards in creating career paths to high skill jobs; determine what it means to implement widespread adoption of youth apprenticeship, including changes in schools; and identify policy changes both at the state and national level (Consortium on Youth Apprenticeship, 1990).

There are several examples of schools actively working on school-to-work transition efforts. In the previous section on restructuring, Philadelphia's Schools Collaborative as well as schools from California's AB1274 were described. Philadelphia has just received a new $10.2 million grant to continue its efforts centered on charter schools or academies within high schools. Currently, forty-nine charter schools have been established, each with a special theme and wide range of special programs. The program has also emphasized school-to-work transitions (Bradley, 1992c).

In California, North Monterey County High School has been funded by AB1274 for a plan similar to Pasadena High School's. In general, the plan is to have skill-based houses and apprentice-oriented academies. Students will specialize in the eleventh grade after an interdisciplinary teaching of subjects in the first two years. The academies in the eleventh through twelfth grades will be visual and performing arts, vocational education, humanities, computer technology, and science and math. A senior portfolio will be required for graduation with a community sponsor to oversee student projects. Students must complete a designated number of job shadowing hours. This school plans to apply for membership in CES.

North Monterey County High School joins thirty other California schools, each recipients of the High School Investment Grant. This grant was developed to create antidotes to the shopping mall high school, giving schools the opportunity to design and implement integrated instruction centered on academics, applied academics, and career preparation. This grant also hopes to connect students' schooling and career preparation through career paths or clusters (like model eight in *The Cunning Hand, the Cultured Mind).* At the school level, career clusters require smaller units, opportunities for student focus through broad occupational areas, and outside connections in the form of work experience, business mentors, and community work. The recipients are still engaged in designing, implementing, and assessing the site-based curricula that integrates student learning through academics, technical preparation, and experiential learning (Kearney & Nielsen, 1992).

California has also just released the high school task force report, *Second to None: A Vision of the New California High School,* which calls for revamping California high schools in ways similar to the High School Investment Grant schools, SB1274 schools like Pasadena and North Monterey, and career clusters and paths. This report, as with Oregon's, was based on the conclusions of *America's Choice: High Skills or Low Wages!* (Commission on the Skills of the American Workforce, 1990). The task force asserts that schools need to be restructured to give students a broader exposure to core subjects in the ninth and tenth grade and a more focused final two years to emphasize preparation for jobs or college through applied courses and field experience. As with the school-to-work legislation in the eleven states described previously, the task force took primary aim at the weak general education track and the unfocused shopping mall high school curriculum. The report recommends integrating subjects and making classes more individually paced. In addition, the report calls for an overhaul of teaching strategies in line with cognitive science approaches as well as standards-setting benchmarks for each unit of study. A new assessment system, tied to quality standards that emphasize students' thinking and problem solving, will be devised along with a stronger support program for all students and new professional roles for teachers in order to implement the plan (CHSTF, 1992).

These examples provide hope for the effort to integrate vocational and academic education because they bring the school-to-work transition into the forefront with the comprehensive approaches to restructuring to introduce a new lever for school reform.

Example Three: Restructuring with School-Business Partnerships

School-business partnerships are not new; however, they are evolving from their original designs. In the beginning, they were merely an extension of traditional corporate charity, providing schools with gifts of equipment and funds. This type of partnership still exists, for American business spends in excess of $2.4 billion per year on schools and colleges (Blount, 1992). For example, between 1989 through 1991, IBM committed more than $77 million in grants, equipment, and technical support. In addition, more than twenty-thousand employees of IBM are personally involved in the efforts (Kranendonk, 1992).

The adopt-a-school model of school-business partnerships increased dramatically in the 1980s, resulting in more than 140,000 partnerships. These partnerships were comfortable because neither the school nor the businesses had to change; but as a consequence, they had little long-term impact. Compacts arrived next as ways to coordinate broad groups of community-based business-education coalitions to work with districts with formal agreements between businesses and students: Businesses agreed to provide jobs if students agreed to stay in school while the schools agreed to help raise the students' achievement. The model of the compact has been expanded by the National Alliance for Business (1989) to a school-to-transition model called the Quality Connection. This model is very similar to the compact except that work experience serves as an important part of the learning experience and not just a reason to stay in school. The jobs are performed alongside adults, so students gain an apprenticeship into the adult work world (Byrne, Constant, & Moore, 1992).

Businesses have also become involved in restructuring as the newest type of school-business partnership. There are several efforts around the country using business energy, money, and advising to create pilot efforts to redesign the high schools. Precisely because they are redesign efforts from the ground up, the involvement of business serves as outside leverage to create restructuring beyond what might be possible without their help. The pilot efforts include the following:

- *RJR Nabisco's Next Century Schools*

  In 1989 the snack-food and cigarette maker unveiled a three-year, $30 million plan to encourage school redesign. New Stanley Elementary School was one of the fourteen recipients. Its model of redesign is a combination of the theoretical foundations of outcomes-based instruction, the "effective schools" model with the "efficacy model" developed by Jeffery Howard, and Comer's School Development

Program. Joined together, these four models create an environment of high expectations. Furthermore, all classes have been de-tracked.

So far, Stanley has been able to make several changes: (1) The school year has been extended; the quarters are separated by one week that teachers use for professional development and planning. (2) The schedule has been changed so that every Wednesday the students leave early, leaving the teachers time for staff development. (3) The entire curriculum has been rewritten to reflect an outcomes-based approach. Letter grades have been replaced by "in progress" or "mastery." (4) To achieve greater personalization and continuity, groups of fifty students stay with the same set of teachers for three years. (5) Decision making takes place through site-based management. (6) Adult literacy and computer classes have been created for the parents (Somerfield, 1992b). (Drake High School is another recipient of the RJR Nabisco competition. See approach two for a description.)

- *The New America's School Development Corporation (NASDC)*

This was the brainchild of the Bush Administration as a component of the America 2000 package. NASDC sponsored a research and development competition for new school designs. Phase one just ended with the awarding of eleven contracts to develop designs for a "new generation of America's schools"—"break-the-mold" schools that give every child the opportunity to reach world-class standards in the five core subjects of English, math, science, history, and geography. In phase two of the competition from September 1993 to May 1995, selected designs will be tested and put into place in a variety of communities. After two years of evaluation and adjustment, New American School models will be ready for national replication and implementation. In phase three between May 1995 and June 1997, the corporation will make its findings available to every community in the country (Blount, 1992).

The explicit purpose of the NASDC program is to question all assumptions about current educational practice, including the length of the school day, traditional age and grade groupings, student/teacher ratios, and testing. The RFPs were not heavily restricted but were asked to follow a few guidelines. The corporation was looking for the design of new schools that (1) focus on systemic change, not curriculum and pedagogy; (2) are design-and-develop projects and not research projects; (3) are benchmarked against demanding goals and world class achievement standards; (4) enable corporations, educators, governors, and others to combine efforts with bidders outlining local, state, and federal laws that would impede their efforts to build new school designs and assure replication; (5) are not a model-school program but from the beginning focus on the implementation in many sites; (6) focus on educational outputs, not inputs or the pedagogical process; (7) do not target an elite population; and (8) include teacher training and development. (Proposals must include performance objectives in the five core subject areas. Developing artistic expression, citizenship, values, school social climate, employability, and ability to pursue further learning should also be included. Bidders were expected to design their own assessment systems based on "world class standards" with periodic benchmarks.) (Olson, 1992c)

Nearly seven hundred design teams submitted bids. As with the RJR Nabisco program, current reform efforts united forces. For example, CES submitted a design with its partners—Comer's School Development Program, Project Zero Development Group (Harvard), and the Education Development Center (Newton, Massachusetts). Their design is based on a new model, ATLAS, which stands for communities committed to Authentic Teaching, Learning and Assessment for all Students. They plan to work initially with four K-12 systems to help each community build a vision of an authentic learning environment in line with the valued standards of each community and its schools. An "authentic learning environment" includes a clearly articulated integrated curriculum; active inquiry built on the notion of student as worker and teacher as coach; developmental continuity; responsiveness to students' various styles and readiness for learning; and authentic assessment, including CES exhibitions (Fisher, 1992).

Other proposals included many of today's leading ideas. One reader of the RFPs argued, however, that many bidders seemed to use the ideas as buzzwords with little thought given to implementing them. The majority of proposals paid little attention to instructional techniques; small, rural communities; drugs and violence; disabled students; connections to other countries and cultures; and motivation of the learner. The more positive ideas found in the proposals include learning as a community activity; mentoring programs; total quality management (TQM), where students and community are viewed as the customers, redefining the role and elevating the status of the classroom teachers; intergenerational learning; and performance-based assessment (Sherry, 1992).

- *Burger King Academy*

  The Burger King Academy is a corporate academy in Miami, Florida. Burger King Corporation and its partners (Dade County Schools and Cities in Schools of Miami, Inc.) started this academy from scratch in 1989 as an alternative school for students at risk of dropping out. The academy emphasizes remediation and has low student-teacher ratios, mentoring, special counseling services, and academic credit for after school jobs. The academy generally follows the district's curriculum and awards public school diplomas. Adapting the philosophy of Cities in the Schools, the academy addresses the total needs of students at risk of dropping out, including health care counseling and career planning. Since 1989, seventeen more academies have been opened (Walsh, 1992).

- *New York City theme schools*

  The New York City school system is in the process of creating fifteen theme schools to provide a more supportive environment for students, one that is more personal and flexible and expands students' options among the city's high schools. One of the schools is the Metropolitan Corporate Academy. This school will enroll eighty disaffected students. The curriculum has been designed by Cities in the Schools and aims to prepare students for work in the corporate sector. The investment firm Goldman, Sachs, and Company has contributed furniture and computer equipment and will help students find job opportunities in the business world. Four more theme schools were scheduled to open, including the following: (1) The Waldeigh School designed by Colgate-Palmolive. Students will be divided into theme houses: writing and publishing, science and technology, and the fine and performing arts. (2) The High School for Environmental Studies, which will have a curriculum designed by the Council on the Environment of New York City. (3) The Pfizer/Reich School will be housed in a building donated by Pfizer in Brooklyn. The school will offer a two-way, bilingual English-Spanish program. (4) The Chancellor's Model School Project, which will be a member of CES (Bradley, 1992b).

- *Corporate Community School* (CCS), *Chicago*

  CCS is a no-fee, full curriculum school for students aged two through thirteen. It is supported by about sixty companies including Sears, Quaker Oats, United Airlines, and Baxter International. What is unique about CCS is its active participation in the students' family lives. The school is open every day from 7 a.m. to 7 p.m., with pre- and postschool childcare provided. The main goal is to remove any outside obstacles to learning. Children are not graded according to the A-F system, and they do not advance grades such as second to third. Instead, the school treats each child individually, reporting to parents in detail on a quarterly basis (Corporate Community Schools of America, 1990).

Example Four: Restructuring through the Leverage of Technology

Technology, like business partnerships, has a long history within the schools. Like business partnerships, there are several different ways technology contributes. Recently the contributions have become more sophisticated to the point that technology in schools may have lasting effects.

Technology is used for distance learning, for training teachers, for word-processing, and for multimedia. Computer software tools, for example—word processing and graphics programs—can help organize and structure complex tasks for students. Video and videodisc technologies can provide visual examples or real world phenomena, events, and stories that students can use for problem solving. Computer networking and satellite communications technologies can help promote local and long distance collaboration and communication among students and teachers and can help them become part of the larger world of scholars. Multimedia can provide much richer material than is typically available in classrooms (Sheingold, 1991).

Currently, ninety-one percent of all school districts have at least some computers. However, in the vast majority of schools there are still not enough to make them a central element of instruction (Bradley, 1992a). Furthermore, the use of technology in schools has had an unimpressive past. In *Teachers and Machines: The Classroom Use of Technology Since 1920*, Cuban writes, "The new technology, like its predecessors, will be tailored to fit the teacher's perspective and the tight contours of school and classroom settings" [quoted in Olson, 1992a] (p. 2). Predictions like this have led technology advocates to plead for a closer relationship between technology and restructuring. It seems safe to assume that if technology is going to have a big impact, it needs to be integrated into the subject matter, the purposes, and the activities of the classroom.

Schools which have adopted computers are following eight trends mirroring the type of changes in restructuring learning. For this reason, technology is often viewed as a lever to restructure schools. The trends are as follows: (1) when teachers use computers, there is a shift from whole-class to small group instruction; (2) as part of the shift from whole to small group instruction, there is a shift from teacher talk, or didactic instruction, to coaching; (3) a shift from working with better students to working with weaker students often takes place; (4) students become more engaged; (5) assessment based on test performance is replaced by assessment based on products, progress, and effort; (6) classrooms change from competitive to collaborative; (7) a shift from all students learning the same thing to different students learning different things takes place; and (8) the primacy of verbal thinking gives way to the integration of visual and verbal thinking (A. Collins, 1991).

In addition to the way that technology can change the classroom level, technology can be the catalyst to restructure the school (David, 1991a). First, technology can be the stimulus to change, which she argues is a necessary step to initiating restructuring. Technology can provide people a reason to rethink traditional practice and, as we have seen, can lead to changes in teaching and learning that are consistent with the goals of restructuring. Second, technology can quickly change the focus to learning how to learn from the pervasive focus on "right answers." Third, the introduction of technology can foster interaction among teachers, which is also an important component to changing educational practice. Fourth, technology can contribute to solving the assessment problem in restructuring.

Discover Rochester provides an example of how technology as a lever for restructuring might work. As part of Rochester's restructuring efforts, the district is reorganizing middle schools into houses or schools-within-schools. The houses are subdivided into clusters of teachers and students. Discover Rochester was carried out in one of the houses. The purpose of the program is to help students develop thinking and problem-solving skills necessary to be self-directed learners and to communicate what they have learned. The project is interdisciplinary and focuses on the local community. Students discover their local community through scientific, mathematical, historical, cultural, and literary perspectives. They work in groups, conducting research and communicating their understanding via a multimedia exhibit at the Rochester Museum and

Science Center. The students' work is displayed through text, audio, graphics, music, and maps (A. Collins, 1991).

Example Five: Restructuring through Assessment[3]

There are many different ideas around the notion of national assessment. At this point, the focus seems to be shifting from the ideas of a national test to national assessment systems. However, there is a large contingency that still seems to favor the national examination idea, including the former Bush Administration, the President's Education Policy Advisory Committee, Educate America, the National Education Goals Panel, the National Council on Education Standards and Testing, and the SCANS panel. Only the New Standards Project (Resnick, 1992) has put up money ($2.5 million) to develop the assessments. There is still a great deal to be decided about the national system such as which subjects to include and whether to incorporate work competencies. However, there does seem to be consensus in the development of performance-based assessment over multiple choice. Furthermore, many people advocate the ideas of states working together to develop regional assessments that would meet a national standard.

The New Standards Project views national assessment as a way to transform teaching and learning in the classrooms. As with technology, assessment can be the lever to initiate restructuring. Mark Tucker (1992) of the National Center on Education and the Economy proposes a mastery standard for education instead of our current time standard. The mastery standards would be built on student performance of tasks that exhibit the kind of behaviors we want students to exhibit as adults. With the mastery standard, the line between testing and curriculum would dissolve because by using task-based exams, teaching would have to change in order to prepare students. Resnick adds to Tucker's argument that tests can change education not simply through their existence but by internalizing the new standards by placing teachers at the center of building and scoring them. Thus, the entire assessment system can be part of the total system of professional activity by teachers.[4]

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[3] For a detailed discussion of assessment, see Latting (1992).

[4] Sizer (quoted in Anrig, 1992) is skeptical that assessment has historically had this type of leverage, and Milbrey McLaughlin (1991) argues the "pull up your socks" analysis of assessment as a lever fails to acknowledge the realities of our schools—dysfunctional families, high rates of student turnover, community

Vermont is experimenting with portfolio assessment. To provide accountability, students develop portfolios, including test scores and examples of their actual work. Second, school districts hold "town meetings" where parents and the public can see the work and interview the students and the teachers to reach judgments. (This is very similar to Hodgson Vo-Tech High School in Delaware, described in approach two, where students complete a senior portfolio that demonstrates integration of knowledge). In order to prepare students for the project, teachers have had to change how they teach. These examples serve to illustrate how assessment can drive changes in the classroom and school level.

Connections to the Integration of Vocational and Academic Education

Because restructuring has been defined differently by various reform efforts, the term has become difficult to use to describe what schools are doing. The obvious question—restructuring to what ends?—is not always carefully answered by proponents of sweeping reforms. In this kind of confusion, one advantage of the most thorough efforts to integrate vocational and academic education—particularly the development of occupationally focused schools and magnet schools and the use of occupational clusters or majors (Models 7 and 8 in Appendix A)—is that they provide a clear answer to this question. High schools need to restructure themselves in order to facilitate sustained collaboration between occupational and academic teachers, to develop schools (or smaller units within high schools) that include like-minded teachers and students interested in a particular occupational focus and, therefore, open to the integration of content and perspectives from that occupational area in all academic classes.

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violence, substance abuse, and teen pregnancy. National assessment must provide more documentation of the inequities.

CONCLUSION: SCHOOL REFORM AND THE INTEGRATION OF VOCATIONAL AND ACADEMIC EDUCATION

Although necessarily less than complete, this report provides a glimpse of the reforms now taking place around the country. Through the location of reform efforts in four basic approaches, it should be clear that many similarities exist despite the initial point of entry. Many of them attempt to eliminate the deep-seated dysfunctions of the shopping mall high school, including teacher ineffectiveness, student disengagement and passivity, and teacher isolation in hopes of creating schools with a cohesive focus with new responsibilities for both teachers and students.

In addition, it should also be apparent that the different approaches have much to teach us about implementation. Implementation of particular reforms requires more than considering how teachers can be supported; rather, it forces us to acknowledge all the features of schools that make them what they are. It forces us to face the synergy of various features, the synergy which explains why simple solutions often do not work. Through this understanding, we can then construct more realistic possibilities of what schools can become.

All of the approaches we have identified start with the assumption that school reform begins where bureaucratic dysfunctions leave off. The differences among them begin with whom they see as the victim, whose "empowerment" will lead to the effective functioning of schools:

- *Approach One* – Teacher professionalism – assumes that teachers will become intrinsically motivated through professionalization and will develop the opportunities to use discretion and behave collegially (Berman & McLaughlin, 1978). At the heart of this approach is the move to professional accountability for student learning, away from bureaucratic accountability.

- *Approach Two* – Curricular and teaching reform – seeks to change classrooms where conventional teaching practices have stripped from them the capacity to educate with their uniform standards, lack of interest in student needs, dysfunctional relationships between teachers and students, and meaningless instruction. Reform beginning with curriculum is an attempt to create change where learning occurs—at the classroom level.

104

- *Approach Three* – Choice mechanisms – gives parents and students power over educational conditions through the right to choose among schools. This approach attempts to heal school dysfunctions by replacing bureaucratic accountability with market accountability and accountability to parents. Within schools, the hope is that schools will be transformed by developing a unique school-wide focus that will attract students and parents.

- *Approach Four* – Restructuring – seeks to empower the school as a center of inquiry, capable of regeneration and of solving its own problems once it is away from the outdated factory model system embodied in state mandates and minimum standards. In essence, restructuring is a movement for schools to be trusted to govern themselves and to create better learning opportunities for teachers and students than can be specified by those outside particular schools.

Despite these crucial differences, there are substantial similarities among them—this is not surprising since they all are attempting to rethink schools. In addition, many different reform efforts have begun joining forces; for example, NCREST, the Coalition of Essential Schools (CES), and Foxfire have begun to cooperate as have CES, Project Zero, and the School Development Program. More generally, many approaches to reform can be characterized by the following:

- They are student-centered with more personalized instruction that makes room for meaning-making, active engagement, and a view of learning that comes from cognitive science.

- They see teachers as learners through either action-based research, new teacher induction, or school redesign or simply through teachers spending time on their own education.

- They assume that schools should have a focus. The focus can be occupational (as in a health-oriented school) or discipline-based (as in science and math magnets) but need not be either of these.

- They enhance teacher professionalism, reducing teacher isolation and increasing their discretion. To enforce quality, they rely on a student focus and external accountability rather than constraints on what teachers do.

- They seek to improve morale among teachers and students demoralized by the constraints on their roles.

- They establish partnerships with either universities, businesses, or networks of other schools rather than attempting their reforms in isolation.

- They attempt to follow well-planned implementation processes, recognizing that implementation is just as serious a barrier to reform as is the lack of any vision for reform.

- They attempt change in every area within the school and recognize the importance of second-order change by challenging assumptions, goals, and routines.

In many ways, these similarities mirror the characteristics of "focus schools" (Hill et al., 1990), which have

> clear, uncomplicated missions and the capacity as organizations to initiate actions in pursuit of their mission, to sustain themselves, solve their own problems. They concentrate on student outcomes, and they have strong social contracts, commitment to parents, and a centripetal character. They are problem-solving organizations, protective of their distinctive character and accountable to people who depend on their performance. (p. viii)

Many of the secondary school reforms sound like focus schools with local governance and often with some choice among several alternatives within a district. This is exactly the combination, Hill believes, will act as a powerful engine for inner city reform.

The Relation between Secondary School Reforms and the Integration of Vocational and Academic Education

Finally, we return to the question of how the integration of vocational and academic education—a powerful reform within vocational education but with much less influence at the moment on the rest of secondary education—is related to other currents of reform sweeping secondary schools. To be sure, the notion of integrating vocational and academic education is not a unitary idea since there are many different approaches as described in the eight "models" discussed throughout the paper and in Appendix A; some of the simpler approaches to integration do very little to change what is taught. However, the more substantial approaches to integration share striking similarities with the four major approaches to reform we have identified.

1. *Teacher professionalization*

   The most substantial approaches to integration depend on teachers—vocational and academic—collaborating on the development of curriculum materials locally in order to devise programs that prepare students for occupations that are important locally and that draw on the interests of students and the strengths of existing faculty. Indeed, those approaches that fail to initiate such collaboration—either because they use curriculum materials off the shelf or because they require existing teachers to reshape their courses without any new resources—are the most trivial examples of integration. However, the reliance on teacher collaboration at the school level also requires that teachers have the freedom and the authority to devise their own curricula and that they have the resources—intellectual resources as well as release time and money—to develop independent curricula.

   It is therefore impossible to develop any of the more promising approaches to integration without giving teachers professional status and independence. A school system in which teachers are tightly constrained by requirements and procedures dictated from the district or state level will find it virtually impossible to foster collaboration and to develop integration in any but the most trivial forms. Indeed, one of the most consistent barriers to integrating vocational and academic education has come from precisely the sources that most constrain teachers—from state curriculum requirements, from university entrance requirements that reinforce the standard academic curriculum, from teacher training programs, from packaged curricula and computer-aided instruction programs that seek to standardize and "teacher-proof" teaching, and from time constraints.

   Thus, any serious effort to integrate curricula must grapple with the same issues as those that lie at the heart of teacher professionalism. There is one clear difference: Within the efforts to integrate vocational and academic education, the purpose of professionalization—the power it gives teachers to collaborate and develop their own curricula—is specified rather than being left as a goal whose subsequent effects are unclear.

2. *Curricular and teaching reform*

While the curriculum reforms now being instituted vary enormously, the majority of them are efforts to replace "standard" teaching—teacher-directed, didactic, with passive students receiving large amounts of unintegrated information, dominated by the approach we label "skills and drills"—with more active, student-centered, project-based approaches to teaching. Such approaches have always been more common in the best vocational classrooms (even if they have not been ubiquitous even there), and one of the consequences of the most successful efforts at integrating vocational and academic education is that the methods of vocational instructors have rubbed off on academic teachers. Indeed, one advantage of integrating vocational material with academic approaches is that the focus on employment applications provides examples of or contexts for those capacities which are normally seen as "academic" in the worst sense of the term. While the integration of vocational and academic education is certainly not the only way to reinvigorate teaching, then, it is completely consistent with many of the curriculum reforms that are now taking place.

3. *Schools of choice*

Several approaches to integration create schools-within-schools—for example, the academies that have proliferated in California (Stern, Raby, & Dayton, 1992) or the "clusters" or "career paths" adopted in other schools—which focus on occupational areas; in other cases, entire schools can develop an occupational focus. This approach to integration then becomes similar to one particular way of enhancing student and parent choice: one that creates magnet schools within a district (or schools-within-a-school in smaller districts) among which parents and students can choose. Of course, it is not necessary within choice mechanisms to have magnet schools or schools-within-schools defined by occupational areas; math and science magnets, humanities magnets, or magnets focused on social issues (the environment or urban problems) are all appropriate foci for schools of choice. Inevitably, however, some magnets or schools of choice are defined in occupational terms; then they become opportunities for the integration of vocational and academic education.

4. *Restructuring schools*

Restructuring seeks to return power to the local school's level and away from other bureaucratic levels. However, the purpose of restructuring—the end of which restructuring is the necessary means—is usually left unspecified; therefore, restructuring is often a mechanism in search of a mission. In the efforts to integrate vocational and academic education, however, local control—over curriculum, the composition of teachers, the grouping of students, and even the definition of purpose—is absolutely crucial; again, many efforts to integrate have foundered on the shoals of district or state control. The efforts to integrate vocational and academic education provide one answer—not the only answer, of course, but one definitive answer—to the crucial question of the goals of local control: Individual schools need power in order to adopt curricula that are suited to the interests of students, the occupations that their students aspire to enter, the capacities of teachers, and the composition of the local community. In this sense, the integration of vocational and academic education provides a specificity that restructuring often lacks.

Integrating vocational and academic education is not, of course, the only way of accomplishing the reforms now percolating through American secondary schools. There are many ways of restructuring or professionalizing teachers that have nothing to do with occupational preparation; indeed, as should be clear from this report, most of the efforts to reform the American high school have had little to do with the occupational goals of secondary education. However, the efforts to integrate academic education—at least, the most thorough-going forms of integration, the richest and most interesting—have much in common with the major strands of reform energy.

Even if curriculum integration is not the only path to reform, however, the incorporation of occupational content still has some clear advantages over other paths—especially those like restructuring and teacher professionalism that often leave the ultimate goals of education reform unspecified. Integrating vocational and academic education provides a way of overcoming some deficiencies in the American high school, including those that developed from the original division between vocational and academic subjects and between college-bound students and those bound for work. It provides a way—not the only way, to be sure, but a way likely to make sense to many students—of "contextualizing" instruction or clarifying the applications of what might otherwise be considered merely academic material. It provides a way of linking what high schools do with institutions outside the schools, particularly with employers who can clarify some of the purpose of formal schooling and with postsecondary institutions that lead in still other ways to adult lives. Above all, the efforts to integrate vocational and academic education force us all to recognize the varied capacities—general and specific, "vocational" and "academic," manipulative and behavioral, as well as cognitive—that successful adults must have. For these reasons, the effort to integrate vocational and academic education may be the best stimulus to reform the American high school.

REFERENCES

Adler, M. (1982a). *The Paideia proposal: An educational manifesto.* New York, NY: Macmillan.

Adler, M. (1982b, July). The Paideia proposal: Rediscovering the essence of education. *The American School Board Journal, 169*(7), 17-20.

American Association for the Advancement of Science (AAAS). (1989). *Science for all Americans.* Washington, DC: Author.

Anderson, B., Cox, P., & O'Connell, C. (1989, January). *Policy making with a difference: The story of Maine's Common Core of Learning.* Denver, CO: Education Commission of the States.

Anderson, B., & McCarthy, B. (1988, Summer). Questions about Re:Learning? *State Education Leader, 2*(5), 1.

Anrig, G. (1992, June 17). "A very American way": Everybody's getting into the act. *Education Week, 11*(39), S7-8.

Applegate, T., & Evans, K. (1992). Outcomes-based education in Utah. *Journal of the National Center for Outcomes Based Education, 1*(1), 57-62.

Association for Supervision and Curriculum Development. (1990). *Public schools of choice.* Alexandria, VA: Author.

Berman, P., & McLaughlin, M. (1978). *Federal programs supporting educational change. Vol. 4: The findings in review.* Santa Monica, CA: RAND Corporation.

Blank, R. (1989). *The educational effects of magnet schools.* Madison, WI: National Center on Effective Secondary Schools.

Blount, F. (1992). Creating the new American school. *Vocational Education Journal, 22*(5), 23-52.

Blumenstyk, G. (1991, May 18). Ten states to receive $75 million from NSF to improve teaching of science and math. *Chronicle of Higher Education*, pp. A19-20.

Blythe, T., & Gardner, H. (1990). A school for all intelligences. *Educational Leadership*, *47*(4), 33-37.

Bradley, A. (1992a, January 8). Linking technology to sweeping plans to restructure schools. *Education Week*, *11*(7), 15-17.

Bradley, A. (1992b, March 25). New study laments lack of change in Chicago classrooms. *Education Week*, *11*(27), 1, 19.

Bradley, A. (1992c, April 1). N.Y.C. to create small, theme-oriented high schools. *Education Week*, *11*(28), 5.

Briscoe, J. (1991, June). PennSERVE: The Governor's Office of Citizen Service. *Phi Delta Kappan*, *73*(10), 758-760.

Brown, J. (1991). *Paideia and high school reform: A Maryland model.* Chapel Hill, NC: National Center for the Paideia Program.

Brunkshorst, B. (1991). Every science, every year. *Educational Leadership*, *49*(2), 36-38.

Buchanan, S. (1987, Summer). Evolution of parental rights in education. *Journal of Law and Education*, *16*(3), 339-350.

Bureau of Professionalization. (1990). *Professionalization of teaching/education*. Miami, FL: Author & Dade County Public Schools.

Byrne, S., Constant, A., & Moore, G. (1992). Making transitions from school to work. *Educational Leadership*, *49*(6), 23-26.

Caine, R. N., & Caine, G. (1991). *Making connections: Teaching and the human brain*. Alexandria, VA: Association for Supervision and Curriculum Development.

Cairn, R., & Kielsmeier, J. (1991). *Growing hope: A sourcebook on integrating youth service into the school curriculum.* Roseville, MN: National Youth Leadership Council.

California Center for School Restructuring (CCSR). (1991). *Background on SB1274 grants.* Sacramento: Author.

California Department of Education. (1987). *Caught in the middle: Education reform for young adolescents in California public schools.* Sacramento, CA: Middle Grade Task Force.

California High School Task Force (CHSTF). (1992). *Second to none.* Sacramento: California State Department of Education.

Carnegie Foundation for the Advancement of Teaching. (1986). *A nation prepared: Teachers for the 21st century.* New York, NY: Carnegie Corporation, Task Force on Teaching as a Profession.

Celis, W. (1990, September 26). Kentucky begins drive to revitalize its schools. *New York Times*, p. B3.

Celis, W. (1991, July 3). Locally running Kentucky schools leads to rewards and some stress. *New York Times*, p. B5

Central Park East Secondary School. (1991). *Central Park East Secondary School six year curriculum plan.* New York, NY: Author.

Chance, W. (1989) ... *The best educations: Reforming America's public schools in the 1980s.* Chicago, IL: John D. and Catherine T. McArthur Foundation.

Chicago Reform Review Unit. (1990, November). *Annual report: Chicago school reform.* Springfield: Illinois State Board of Education.

Chubb, J., & Moe, P. (1990). *Politics, markets, and American schools.* Washington, DC: Brookings Institute.

Cistone, P., Fernandez, J., & Tornillo, P. (1989, August). School-based management/shared decision making in Dade County. *Education and Urban Society, 21*(4), 393-401.

Clewell, B., & Joy, M. (1990). *Choice in Montclair, New Jersey.* Princeton, NJ: Educational Testing Service.

Clune, W., & White, P. (1988). *School-based management: Institutional variation, implementation and issues for further research.* Rutgers, NJ: Center for Policy and Research Education, Rutgers State University of New Jersey.

Coalition of Essential Schools (CES). (1988). *Prospectus.* Providence, RI: Author.

Cohen, D. (1989, November). *Policy and practice: The classroom impact of state and federal policy.* Paper presented at the annual conference of the Association of Public Policy and Management, San Francisco, CA.

Collins, A. (1991). The role of computer technology in restructuring schools. *Phi Delta Kappan, 73*(6), 28-36.

Collins, R. (1991). *Summative evaluation report, school based management/shared decision-making project 1987-1990.* Miami, FL: Dade County Public Schools, Office of Educational Accountability.

Comer, J. P. (1991). *A brief history and summary of the school development program.* New Haven, CT: Yale Child Study Center.

Commission on Excellence in Education. (1983). *A nation at risk: The imperative for educational excellence.* Washington, DC: Author.

Commission on the Skills of the American Workforce. (1990). *America's choice: High skills or low wages!* Rochester, NY: National Center on Education and the Economy.

Committee on Education and Labor, House of Representatives. (1988). *Improving education: School districts implementing the effective schools model.* Washington, DC: U.S. Government Printing Office.

Conley, D. (1990). *Lessons from laboratories in school restructuring and site-based decision-making. Oregon's "2020" schools take control of their own reform.* Eugene: Oregon School Study Council.

Conrad, D., & Hedin, D. (1989). *High school community service: A review of research and programs.* Madison, WI: National Center on Effective Secondary Schools.

Consortium on Chicago School Research. (1992). *Survey of Chicago reform progress.* Chicago, IL: Author.

Consortium on Youth Apprenticeship. (1990). *Report of a conference.* Cambridge, MA: Jobs for the Future.

Corporate Community Schools of America. (1990). *Progress report.* Chicago, IL: Author.

Corryn, N., & Cason, A. (1991). *Rochester City School District Magnet Schools final report.* Rochester, NY: Office of Student Data, Testing and Records.

Cox, P., & deFrees, J. (1992). *Work in progress: Restructuring in ten Maine schools.* Augusta, ME: The Regional Laboratory for Educational Improvement of the Northeast and Islands.

Crain, R., Heebner, A., Kiefer, D. R., & Si, Y. P. (1992). *The effectiveness of New York City's career magnet high schools: An evaluation of ninth grade performance using an experimental design* (MDS-173). Berkeley: National Center for Research in Vocational Education, University of California at Berkeley.

Cross, K. P. (1984). The rising tide of school reform reports. *Phi Delta Kappan, 66*(3), 166-172.

Cuban, L. (1988). *The managerial imperative and the practice of leadership in schools.* Albany: State University of New York Press.

Cuban, L. (1990, January). Reforming again, again, and again. *Educational Researcher, 19*(1), 3-13.

Cushman, K. (1990, June). What students say about essential schools. *Horace, the Coalition of Essential Schools, 6*(4), 1-6.

Cushman, K. (1992). Math and science in the Essential School. *Horace, the Coalition of Essential Schools, 8*(3), 1-5.

Dade County Public Schools. (1989a). *Design and architecture senior high school: RFP.* Miami, FL: Author.

Dade County Public Schools. (1989b). *MAST: RFP.* Miami, FL: Author.

Dade County Public Schools. (1989c). *Saturn schools project: RFP.* Miami, FL: Author.

Darling-Hammond, L. (1988). Accountability for professional practice. In M. Levine (Ed.), *Professional practice schools, building a model* (pp. 71-102). Washington, DC: American Federation of Teachers.

Davenport, S., & Moore, D. R. (1989). *The new improved sorting machine.* Chicago, IL: Designs for Change.

David, J. (1989, May). Synthesis of research on school based management. *Educational Leadership, 46*(9), 45-52.

David, J. (1991a). Restructuring and technology: Partners in change. *Phi Delta Kappan, 73*(6), 37-40, 78-79.

David, J. (1991b). Restructuring in progress: Lessons from pioneering districts. In R. Elmore (Ed.), *Restructuring schools: The next generation of educational reform* (pp. 209-250). San Francisco, CA: Jossey-Bass.

David, J., Cohen, M., Honetschlager, D., & Traiman, S. (1990). *State actions to restructure schools: First steps*. Washington, DC: Center for Policy Research, National Governors' Association.

Deming, W. E. (1988). *Out of the crisis*. Cambridge: Massachusetts Institute of Technology.

Demooze, F. (1987). *San Diego High School International Baccalaureate/Writing Academy Magnet Program first year evaluation* (Evaluation Department Report No. 452). San Diego, CA: San Diego City Schools.

Edmonds, R. (1978, July). *A discussion of the literature and issues related to effective schooling*. Paper presented for the National Conference on Urban Education, St. Louis, MO.

Education Commission of the States (ECS). (1991). *Restructuring the education system: Consumer's guide* (Vol. 1). Denver, CO: Author.

Elmore, R. (1987). Choice in public education. In W. Boyd & C. Kerchner (Eds.), *The politics of choice and excellence in education* (pp. 79-99). New York, NY: Falmer Press.

Evans, R. (1992). *The human face of reform: Meeting the challenge of implementation*. Wellesley, MA: Human Relations Service, Inc.

Finn, C., Jr. (1990). Why we need choice. In W. L. Boyd & H. J. Walberg (Eds.), *Choice in education: Potential and problems* (pp. 3-19). Berkeley, CA: McCutchan.

Fisher, S. (1992, April). CES, Partners submit America 2000 proposal. *Inside Re:Learning* (No. 2). Providence, RI: Coalition of Essential Schools and the Education Commission of the States.

Fiske, E. (1991). *Smart schools, smart kids: Why do some schools work?* New York, NY: Simon & Schuster.

Fitzpatrick, K. (1991, May). Restructuring to achieve outcomes of significance for all students. *Educational Leadership, 48*(8), 18-22.

Fliegel, S. (1990, February). A district of choice. *Equity and Choice, 5*(1), 17-18.

Fogarty, R. (1991, October). Ten ways to integrate the curriculum. *Educational Leadership, 49*(2), 61-65.

Foxfire Fund, Inc. (1989). Case study index. *Hands On, A Journal for Teachers, 2*(33), 75-80.

Foxfire Fund, Inc. (1990). The Foxfire approach: Perspectives and core practices. *Hands On, A Journal for Teachers, 3*(340), 5-6.

Gadowsky, S. (1991, November). *Hodgson Vo-Tech High School.* Presentation at the Coalition of Essential Schools Fall Forum, Chicago, IL.

Gardner, H., & Hatch, T. (1989, November). Multiple intelligences go to school: Educational implications of the theory of multiple intelligences. *Educational Researcher, 18*(8), 4-9.

Gheens Academy. (1991). *The professional practice schools.* Louisville, KY: Author.

Glenn, C. (1991, January). Will Boston be the proof of the choice pudding? *Educational Leadership, 48*(5), 41-43.

Gnaedinger, J. (1989). *Chicago Careers for Youth: An idea whose time has come.* Northbrook, IL: STS Consultants, Ltd. (ERIC Document Reproduction Service No. ED 313 526)

Gomez, J. (1989, October). School-based management. *American School Board Journal, 176*(10), 20-22.

Gonzales, P., Brown, B., Day, H., Doe, J., Johnson, C., Peterson, B., & Ross, B. (1989). *School restructuring: Maintaining Dade's national leadership role.* Miami, FL: Citizens for Better Schools.

Goodlad, J. (1987). *A place called school: Prospects for the future.* New York, NY: McGraw-Hill.

Goodlad, J. (1990). *Center for Educational Renewal background.* Seattle: University of Washington.

Grubb, W. N., Davis, G., Lum, J., Plihal, J., & Morgaine, C. (1991). *"The cunning hand, the cultured mind": Models for integrating vocational and academic education* (MDS-141). Berkeley: National Center for Research in Vocational Education, University of California at Berkeley.

Hale, P., & Levine, D. (1986). *Kansas City Schools' Long Range Magnet School Plan.* Kansas City, MO: Department of Education.

Harp, L. (1992a, April 1). Measure would create board to set work-readiness skills. *Education Week, 11*(28), 26.

Harp, L. (1992b, April 15). Panel blueprint seeks to relate school to work. *Education Week, 11*(30), 1, 10.

Haynes, L. (1983). *Emergency School Aid Act (ESAA) magnet program evaluation (FY81 and FY82).* Atlanta, GA: Atlanta Public Schools, Division of Research, Evaluation, and Data Processing.

Haynes, N., & Comer, J. P. (1991). *Summary of the School Development Program effects*. New Haven, CT: Yale Child Study Center.

Haynes, N., Comer, J. P., & Hamilton-Lee, M. (1988, September). The School Development Program: A model for school improvement. *Journal of Negro Education*, *57*(1), 11-20.

Hill, P., & Bonan, J. (1991). *Decentralization and accountability in public education*. Santa Monica, CA: RAND Corporation.

Hill, P., Foster, G., & Gendler, T. (1990). *High schools with character*. Santa Monica, CA: RAND Corporation.

Holcomb, E., & Peterson, K. (1991). The National Center for Effective Schools: Extending knowledge and practice of school improvement. *Educational Considerations*, *18*(2), 3-6.

Holmes Group. (1991). South Central Institutions describe starting PDS. *Forum*, 6(1), 16.

Howe, H., II. (1992). America 2000: A bumpy ride on four trains. *Phi Delta Kappan*, *73*(3), 192-203.

Indianapolis Public Schools. (1988). *Connections, animal patterns, changes in time and space: An interdisciplinary theme-based curriculum report*. Indianapolis, IN: Key School Option Program.

Jacobs, H. H. (1989). *Interdisciplinary curriculum: Design and implementation*. Alexandria, VA: Association of Supervision and Curriculum Development.

Jefferson County Public Schools. (1990). *Magnet schools*. Louisville, KY: Author.

Johnson City Central School District. (1991). *The outcomes-driven developmental model: A program for comprehensive school improvement*. Johnson City, NY: Author.

Johnstone, W. (1989, March). *Interdependence of research and practice: Effective school research*. Paper presented at Annual Meeting of the American Educational Research Association, San Francisco, CA.

Kanoy, R. (1992). How do you make the Paideia program work? *Paideia Next Century, 1*(1), 7.

Katz, V. (1991, June 21). House Bill 3565, Oregon Educational Act for the 21st century. Salem: Oregon Legislative Assembly.

Kearney, K., & Nielsen, E. (1992). *The California Investment Grant: Stories from thirty redesigning high schools*. Sacramento: California State Leadership Academy.

Kentucky Department of Education. (1990). *Kentucky Education Reform Act*. Louisville: Author.

Kerchner, C. (forthcoming). *Pittsburgh: Reform in a well managed public bureaucracy*. Claremont, CA: Claremont Graduate School of Education, Project VISION.

Kliebard, H. (1986). *The struggles for the American curriculum*. Boston, MA: Routledge and Kegan Paul.

Koppich, J. (forthcoming). *Treading the rocky road to reform in Rochester*. Claremont, CA: Claremont Graduate School of Education, Project VISION.

Kramer, P. (1991). Teachers on Paideia. *The Paideia Bulletin*. Chicago, IL: The Institute for Philosophical Research.

Kranendonk, B. (1992, January). Programmed for partnership: IBM's support for business-education includes focus on vocational education. *Vocational Education Journal, 67*(1), 28-30.

Latting, J. (1992). *Assessment in education: A search for clarity in a growing debate* (MDS-254). Berkeley: National Center for Research in Vocational Education, University of California at Berkeley.

Lear, R. (1991). *Integrated teaching and learning in three essential schools.* Providence, RI: Coalition of Essential Schools.

Levin, H. (1987). Accelerated schools for disadvantaged students. *Educational Leadership, 44*(6), 19-21.

Levin, H. (1991). *Learning from accelerated schools.* Unpublished paper, Center for Educational Research, Stanford, CA.

Levin, H., Hopfenberg, W., Meister, G., & Rogers, J. (1990). *Accelerated schools.* Stanford, CA: Center for Educational Research.

Levine, M., & Gendler, T. (1988). Background paper: Professional Practice Schools. In M. Levine (Ed.), *Professional Practice Schools, building a model* (pp. 21-71). Washington, DC: American Federation of Teachers.

Lewis, A. (1988). *Facts and faith: A status report on youth service.* Washington, DC: William T. Grant Foundation, Commission on Work, Family, and Citizenship.

Lewis, A. (1989). *Restructuring America's schools.* Arlington, VA: American Association of School Administrators.

Lieberman, A., Darling-Hammond, L., & Zuckerman, D. (1992). *Early lessons in restructuring schools.* New York, NY: National Center for Restructuring Education, Schools, and Teaching.

Little, J. W. (1989). District policy choices and teacher professional development opportunities. *Education Evaluation and Policy Analysis, 11*(2), 165-179.

Little, J. W., Gerritz, W., Stern, D., Guthrie, J., Kirst, M., & Marsh, D. (1987). *Staff development in California: Public and personal investments, program patterns, and policy cases.* Berkeley: Far West Laboratory for Educational Research and Development and Policy Analysis for California Education.

Littleton High School. (1991). *Direction 2000: Rethinking the American school.* Littleton, CO: Author.

Majeske, R. (1991, March). Evaluation presented at international conferences. *Paideia Bulletin*, *7*(4), 1-2.

Malen, B., Ogawa, R., & Kranz, J. (1991, February). Site based management: Evidence says site based management hindered by many factors. *School Administrator*, *30*(32), 53-56.

Marriot, M. (1990, June 13). A new road to learning: Teaching the whole child. *New York Times*, p. B5.

Mastery in Learning (MIL). (1992). *Information packet.* Washington, DC: National Education Association.

McLaughlin, M. (1991). Test-based accountability as a reform strategy. *Phi Delta Kappan*, *73*(3), 248-251.

McPherson, K. (1991, June). Project Service Leadership: School service projects in Washington State. *Phi Delta Kappan*, *73*(9), 750-753.

Messacappa, D. (1989, April 21). $8.3 million Pew grant to rework high schools. *Philadelphia Inquirer*, supplied by the Philadelphia Schools Collaborative.

Metz, M. H. (1986). *Different by design: The context and character of three magnet schools.* New York, NY: Routledge and Kegan Paul.

Moberg, D. (1992, Winter). Can democracy save Chicago's schools? *American Prospect*, *15*(2), 98-108.

Moore, D. (1990). Voice and choice in Chicago. In W. Clune & J. Witte (Eds.), *Choice and control in American education. Volume 2: The practice of choice, decentralization, and school restructuring* (pp. 68-95). Bristol, PA: Falmer Press.

Mt. Tamalpias Union High School District. (1992). *Integrated Science 1-2-3-4 (IS 1-2, IS 3-4).* Unpublished handout, Larkspur, CA.

Murnane, R. J. (1986). Family choice in public education: The roles of students, teachers, and system designers. *Teachers College Record, 88*(2), 169-189.

Nathan, J., & Kielsmeier, J. (1991, June). The sleeping giant of school reform. *Phi Delta Kappan, 73*(9), 739-742.

National Alliance for Business. (1989). *The Compact Project: School business partnerships for improving education.* Washington, DC: Author.

National Governors' Association (NGA). (1991). *From rhetoric to action: State progress in restructuring the education system.* Washington, DC: Author.

Office of the Superintendent of Public Instruction (OSPI). (1991). *Schools for the 21st century: An innovative program to restructure Washington's Schools.* Olympia, WA: Author.

Olson, L. (1988, January 27). Children flourish here. *Education Week, 7*(18), 1, 18.

Olson, L. (1990, October 3). Jury still out on Re:Learning's grassroots reform experiments. *Education Week, 10*(5), 1, 18.

Olson, L. (1992a, January 8). Contrary to predictions, use of technology in schools elusive. In *Profiles on Technology: Striving to harness the power of technology to improve the nation's schools.* Supplement of *Education Week, 11*(7), 2-4.

Olson, L. (1992b, March 11). Florida district vows to infuse quality principles into schools. *Education Week, 11*(25), 24.

Olson, L. (1992c, March 11). Nearly 700 teams submit school-design overhauls. *Education Week, 11*(25), 1, 22.

Olson, L. (1992d, March 11). Schools getting swept up in current business's "quality" movement. *Education Week, 11*(25), 1, 25.

Olson, L. (1992e, March 18). Five districts, Center to create new vision of schools. *Education Week, 11*(27), 10.

Olson, L. (1992f, June 10). States aim to ease transition from school to work. *Education Week, 11*(38), 17.

Passow, H. (1989). Present and future directions in school reform. In T. Sergiovanni (Ed.), *Schooling for tomorrow* (pp. 13-37). Boston, MA: Allyn & Bacon.

Paulu, N. (1989). *Improving schools and empowering parents: Choice in American education*. Washington, DC: U.S. Department of Education.

Payzant, T. (1991, September). From the bottom up, San Diego restructures. *Thrust for Educational Leadership, 49*(1), 18-23, 50-51.

Peterkin, R. (1991, January). What's happening in Milwaukee? *Educational Leadership, 48*(5), 50-52.

Philadelphia Schools Collaborative (PSC). (1990). *The Philadelphia story, comprehensive high schools: Rethinking and restructuring*. Philadelphia, PA: Author.

PSC. (1991, June). *School district of Philadelphia charter schools-within-schools*. Philadelphia, PA: Author.

Phillips, L., & Kerchner, C. (forthcoming). *Miami case draft*. Claremont, CA: Claremont Project VISION.

Piaget, J. (1974). *To understand is to invent: The future of education*. New York, NY: Viking. (Original work published in 1948)

Plihal J., Adams Johnson, M., Bentley, C., Morgaine, C., & Liang, T. (1992). *Integration of vocational and academic education: Theory and practice* (MDS-065). Berkeley: National Center for Research in Vocational Education, University of California at Berkeley.

Powell, A., Farrar, E., & Cohen, D. K. (1985). *The shopping mall high school: Winners and losers in the educational marketplace*. Boston, MA: Houghton Mifflin.

Puget Sound Educational Consortium. (1986). *Puget Sound Educational Consortium: Progress, practices, and possibilities*. Puget Sound, WA: Author.

Puget Sound Educational Consortium. (1990). *Puget Sound Educational Consortium abstract*. Puget Sound, WA: Author.

Raywid, M. (1991). Rethinking school governance. In R. Elmore (Ed.), *Restructuring schools: The next generation of educational reform* (pp. 152-206). San Francisco, CA: Jossey-Bass.

Resnick, L. (1992, June 17). The most promising way of getting the education we want. In By all measures: The debate over standards and assessment [Special issue]. *Education Week*, *11*(39), S5-6.

Resnick, L., & Klopfer, L. (1989). *Toward a thinking curriculum*. Alexandria, VA: Association of Supervision and Curriculum Development.

Rochester City School District. (1989). *Questions and answers about school-based planning*. Rochester, NY: Author.

Rochester Teacher's Contract. (1990). *Section 60: School accountability*. Rochester, NY: Author.

Rosenberg, B. (1989). Public school choice: Can we find the right balance? *American Educator*, *8*(2), 5-12.

Rothman, R. (1991, October 30). Schools stress speeding up, not slowing down. *Education Week, 10*(8), 1, 15.

Sachse, T. (1990). *The California Scope, Sequence, and Coordination project fact sheet.* Sacramento: California Department of Education.

San Diego City Schools (SDCS). (1990a). *Guiding San Diego Schools restructuring initiative.* San Diego, CA: Innovation and Change Leadership Group.

SDCS. (1990b). *San Diego City Schools restructuring for excellence.* San Diego, CA: Author.

Schlecty, P. (1990). *Schools for the 21st century.* San Francisco, CA: Jossey-Bass.

Schools of the Future Commission. (1987). *Which way to the future? San Diego and its schools at a crossroads.* San Diego, CA: SDCS.

Secretary's Commission on Achieving Necessary Skills (SCANS). (1992). *Learning a living: A blueprint for high performance, a SCANS report for America 2000.* Washington, DC: U.S. Department of Labor.

Sheingold, K. (1991). Restructuring for learning with technology: The potential for synergy. *Phi Delta Kappan, 73*(9), 17-27.

Sherry, M. (1992, May 6). Searching for new American schools. *Education Week, 11*(33), 23.

Sir Francis Drake High School. (1992a). *Engineering block concept paper.* San Anselmo, CA: Author, Integrated Studies Department.

Sir Francis Drake High School. (1992b). *Performing Arts/Humanities Integrated Studies upper division block.* San Anselmo, CA: Author, Integrated Studies Department.

Sizer, T. (1984). *Horace's compromise: The dilemma of the American high school.* Boston, MA: Houghton Mifflin.

Sizer, T. (1989). Diverse practice, shared ideas: The essential school. In H. Walberg & J. Lane (Eds.), *Organizing for learning: Toward the 21st century* (pp. 6-12). Reston, VA: National Association of Secondary Principals.

Somerfield, M. (1992a, January 15). Putting graduates under "warranty" gains favor in districts and states. *Education Week, 11*(17), 1, 16.

Somerfield, M. (1992b, June 10). RJR Nabisco lays $30 million bet on "bottom up" reform strategies. *Education Week, 11*(38), 1, 10.

Spady, W., & Marshall, K. (1991, October). Beyond traditional outcomes-based education. *Educational Leadership, 49*(2), 67-72.

Stasz, C., McArthur, D., Lewis, M., & Ramsey, K. (1990). *Teaching and learning generic skills for the workplace* (MDS-066). Berkeley: RAND Corporation and the National Center for Research in Vocational Education, University of California at Berkeley.

Stern D., Raby, M., & Dayton, C. (1992). *Career academies in high schools.* San Francisco, CA: Jossey-Bass.

Timar, T. (1989, December). The politics of schools restructuring. *Phi Delta Kappan, 71*(4), 265-275.

Tucker, M. (1992, June 17). A new "social compact" for mastery in education. *Education Week, 11*(39), S3-4.

Tyack, D. (1974). *The one best system.* Cambridge, MA: Harvard University Press.

Viadero, D. (1991, October 9). Educators beginning to embrace lessons of cognitive studies. *Education Week, 10*(5), 9-12.

Wallace, R., Young, J., Johnston, J., LeMahieu, P., & Bickel, W. (1984, March). Secondary education renewal in Pittsburgh. *Educational Leadership, 49*(7), 73-77.

Walsh, M. (1992, April 29). "Turning lives around" is the goal of Burger King-school partnerships. *Education Week, 11*(32), 1, 15.

Wasley, P. (1991). *Trusting kids and their voices: A humanities teacher in the midst of change*. Providence, RI: Coalition of Essential Schools.

West, P. (1992a, March 4). Project 2061 teams fine-tuning models to help guide science-education reforms. *Education Week, 11*(28), 1, 11.

West, P. (1992b, March 4). Seeking mark in standards process, N.S.T.A. prepares curriculum guide. *Education Week, 11*(28), 1, 12.

West, P. (1992c, May 13). N.S.F. initiative emerges as "topic number one" on state agendas. *Education Week, 11*(34), 8.

Wilkerson, I. (1991, June 30). Politics trip up Chicago school revolution. *New York Times*, pp. 1, 13.

William T. Grant Foundation. (1992). *States and communities on the move*. Washington, DC: Author.

BIBLIOGRAPHY

Anson, A., Cook T., Habib, F., Grady, M., Haynes, N., & Comer, J. P. (1991). The Comer School Development Program: A theoretical analysis. *Urban Education, 26*(1), 56-82.

Aschbacher, P. (1991). Humanitas: A thematic curriculum. *Educational Leadership, 49*(2), 16-19.

Blankstein, A. (1992). Lessons from enlightened corporations. *Educational Leadership, 49*(6), 71-75.

Bonstingl, J. (1992). The total quality classroom. *Educational Leadership, 49*(6), 66-70.

Brant, R. (1991, May). On restructuring schools: A conversation with Mike Cohen. *Educational Leadership, 48*(9), 54-58.

Carnegie Forum on Education and the Economy. (1986). *A nation prepared: Teachers for the 21st century.* New York, NY: Author.

Carnegie Foundation for the Advancement of Teaching. (1988). *Report card of school reform: The teachers speak.* New York, NY: Author.

Crane, S. (1991). Integrated science in a restructured high school. *Educational Leadership, 49*(2), 39-41.

Cuban, L. (1986). *Teachers and machines: The classroom use of technology since 1920.* New York, NY: Teachers College Press.

Cushman, K. (1989, November). At the five year mark: The challenge of being "essential." *Horace, the Coalition of Essential Schools, 6*(1), 1-8.

David, J. (1989). *Restructuring in progress.* Washington, DC: National Governors' Association.

Division of Human Resources. (1989). *Effective schools programs: Their extent and characteristics. Briefing report to the Chairman, Committee on Education, Labor, House of Representatives*. Washington, DC: General Accounting Office. (ERIC Document Reproduction Service No. ED 313 797)

Elmore, R. (1990). *Community School District 4, New York City: A case of choice.* Rutgers, NJ: Center for Policy Research in Education, Rutgers University.

Elmore, R. (1990). *Restructuring schools: The next generation of educational reform.* San Francisco, CA: Jossey-Bass.

Institute for Independent Education. (1989). *Magnet schools for Chicago achievement at risk if policy makers retreat.* Washington, DC: Author.

Levin, H. (1988, April). *Structuring schools for greater effectiveness with educationally disadvantaged or at-risk students.* Paper presented at the American Educational Research Association Annual Meeting, New Orleans, LA.

Levin, D., & Lezotte, L. (1990). *Unusually effective schools: A review and analysis of research and practice.* Madison, WI: National Center for Effective Schools Research and Development.

Mei, D., & Watson, H. (1989). *Magnet School Program, 1988-1989. End of year report.* New York: New York City Board of Education, Office of Research, Evaluation, and Assessment.

Messacappa, D. (1989, April 24). Pew grant lets schools think big about change. *Philadelphia Inquirer*, supplied by the Philadelphia Schools Collaborative.

Murphy, J., & Waynant, L. (1989). Reaching for excellence and equity in Prince George's County Public Schools. In B. O. Taylor (Ed.), *Case studies in effective schools research* (pp. 13-39). Madison, WI: National Center for Effective Schools Research and Development.

National Research Council. (1989). *Everybody counts: A report to the nation on the future of mathematics education.* Washington, DC: National Academy Press.

O'Neil, J. (1991). From boardroom to classroom. *Association for Supervision and Curriculum Development Update, 33*(5) 1, 4.

Payne, T. (1991). The Comer Intervention Model and school reform in Chicago. *Urban Education, 26*(1), 8-24.

Poplin, M. (1991). The quest for meaning. In *Constructing a thinking and meaning centered curriculum* (pp. 10-16). Sacramento: California State Leadership Academy.

Program Development and Intervention Section. (1991). *A guide to becoming an Illinois Accelerated School.* Springfield: Illinois State Board of Education.

Sosniack, L., & Ethington, C. (1992). When public schools "choice" is not academic: Findings from the National Education Longitudinal Study of 1988. *Educational Evaluation and Policy Analysis, 14*(1), 35-52.

Spady, W. (1988, October). Organizing for results: The basis of authentic restructuring and reform. *Educational Leadership, 46*(2), 4-8.

Vickery, T. (1990, April). ODDM: A workable model for total school improvement. *Educational Leadership, 47*(7), 67-70.

Walberg, H., Bakalis, M., Bast, J., & Baer, S. (1989, June). Reconstructing the nation's worst schools. *Phi Delta Kappan, 71*(10), 802-805.

Wasley, P. (1991). *A formula for making a difference: A story for teacher change.* Providence, RI: Coalition of Essential Schools.

Weisman, J. (1991, September 4). New-schools group rethinks its strategy to cast a wider net. *Education Week, 10*(1), 1, 42.

West, P. (1991, September 18). E.D. and N.S.F. urged to lead science reform. *Education Week, 10*(3), 1.

Westerburg, T., & Brickley, D. (1991). Restructuring a comprehensive high school. *Educational Leadership*, *48*(8), 23-26.

Appendix A

THE EIGHT MODELS OF INTEGRATING VOCATIONAL AND ACADEMIC EDUCATION

Model 1 – Incorporating more academic content in vocational courses. Some schools have worked to incorporate more academic material into existing vocational courses either through exhortation, through the adoption of new curriculum material, or through the development of model curricula.

Model 2 – Combining vocational and academic teachers to incorporate academic content into vocational programs. A somewhat different approach has assigned academic teachers the responsibility of enhancing the academic components of vocational programs. Academic teachers can then teach applied academic courses modified for a particular occupational area, teach individual lessons or models for vocational students, help vocational instructors to develop their own academic exercises, or pull students out of vocational classes to work on academic competencies. The crucial element in their approach, in contrast to Model One, is that vocational and academic teachers collaborate in modifying vocational programs.

Model 3 – Making academic courses more vocationally relevant. A third approach modifies the academic curriculum instead of the vocational courses by incorporating vocational applications and reconfiguring academic courses so that the topics are more relevant to vocational students. While informal methods of encouraging these changes have been tried, a more common approach has been to introduce specific courses, especially the "applied academics" courses, including Principles of Technology, Applied Mathematics, and Applied Communications. These courses have been used in many ways, however. In some cases they are clearly related to vocational purposes and a sequence of courses, while in other schools they have been simply forms of remedial education or electives unconnected to vocational education.

Model 4 – Curricular "alignment," modifying both vocational and academic education. This model combines elements from the preceding approaches by using more occupationally relevant material in academic courses and more academic education in vocational courses and then linking the two. This may happen when two or more teachers from both vocational and academic sides coordinate the content of what they teach at a particular time—what we term "horizontal alignment." In the best cases, this practice creates sequences of vocational and academic courses that reinforce each other ("vertical alignment"), clarifying that integrating vocational and academic education can reform entire programs rather than individual courses.

Model 5 – The senior project as a form of integration. A few schools have instituted senior projects, often requiring a research paper, a physical project, and an oral presentation. Such a project forces students to integrate their learning from various courses including the capacities learned in vocationally oriented workshops. Several schools with senior projects have found it necessary to revise their curricula in order to better prepare students for independent efforts during the senior year—that is, the senior project forces a kind of vertical alignment.

Model 6 – The academy model. Academies are schools-within-schools that typically include academic teachers in English, math, and science with a vocational instructor in a subject like health, electronics, business or agriculture which gives focus to the academy. Because these teachers stay with a group of students for all four courses over two or three years the possibilities for both horizontal alignment and vertical alignment are increased enormously, though not all academies succeed in integrating their vocational and academic components. Academies also establish close relationships with particular firms operating in their occupational area, providing students with additional motivations, mentors, and internships.

Model 7 – Occupational high schools and magnet schools. In a few cities, occupational high schools exist that focus on a cluster of occupations such as health or agriculture; and in other cases, cities have established occupationally oriented magnet schools. These institutions can provide an obvious focus for efforts to integrate vocational and academic education and a culture in which it is easier to emphasize the occupational content of coursework. They are also excellent examples of "focus schools" (Hill et al., 1990)—schools with clear missions and educational purposes and worthy alternatives to the chaos of the conventional high school.

Model 8 – Occupational clusters, career paths, and occupational majors. A few schools have established departments organized around occupational clusters in place of vocational and academic departments. In other cases, schools have maintained conventional departments, but students and teachers are organized in "career paths" or elect occupational "majors." This creates a matrix structure in which teachers participate both in department discussions about particular vocational and academic courses and in occupational clusters which can then develop coherent sequences of courses and align courses within each cluster. Like the occupational focus of each academy, occupational clusters facilitate cooperation among teachers, facilitate both horizontal and vertical alignment, and provide academic teachers with obvious vocational emphases to incorporate in their classes.

Appendix B
TEACHER PROFESSIONALISM

Example One: School-Based Management

Chicago

As a response to William Bennett's description of Chicago as the nation's worst school district in 1989, Chicago handed over its six hundred public schools to parent-led councils and gave them broad authority over personnel and curriculum. The central bureaucracy was viewed as the heart of the problem and decentralization was elected as the solution (Moberg, 1992). It was hoped that local control, or the democratic "voice," could create more effective, responsive, and innovative schools. Hence, Chicago is now described as "the most radical attempt in the country to reshape a big-city school system."

Prior to the 1989 decision, Chicago schools were run like most schools in America: by a board of education, superintendent, and central administration. Eleven people on the board made all budgetary, staff, and policy decisions. Schools were run by the principals with lifetime tenure who were appointed by the central administration. Today, schools are run by a fifteen-member board of education, a superintendent, and the central administration. Each local school council consists of ten elected members: six parents who have children in the schools, two community residents without children in the school, two teachers at the school, and the school principal.

Local councils have several responsibilities, including hiring the principal and negotiating a four-year contract, specifying the school's educational goals, approving curriculum and the plan to raise academic achievement (the school improvement plan), approving the school budget, and making recommendations to faculty members about teaching materials.

At this point few local councils have initiated any far-reaching educational reforms. Most often, they express concerns, offer support to the principal, and at times initiate ideas. There has been little effort to involve teachers or provide them with the necessary retraining; consequently, Chicago has a somewhat more unique version of school-based management (SBM) than most schools around the country. Less than five percent of the total schools have undertaken significant restructuring (Bradley, 1992c). Further complicating matters is the current fiscal crisis that has lead to centralization of decision making at the district level at the same time that the new decentralized structure is trying to gain legitimacy for the local level.

This experiment has had more to do with politics than education so far. The councils have had to spend so much time wrestling with the system that most of them have not yet addressed the question of school achievement. Indeed, student test scores have stagnated since decentralization went into effect, and the dropout rate has risen. In addition, the state legislature is now grappling with the plan to determine if it is in fact unconstitutional because the parents are given greater weight in selecting council members than other citizens (the Illinois Supreme Court ruled this plan unconstitutional). Furthermore, the political infighting has escalated to the point that several parents have been charged with aggravated assault on the school's principal. In six other schools, students and teachers have boycotted classes, and warring opponents have slashed opponents' car tires and dumped garbage on their lawns as a result of disagreements over the way the schools have been run. Many teachers are still not speaking to each other (Wilkerson, 1991).

Even with these problems, some schools have been able to make changes at their sites. They have created programs to restore discipline, fight gangs, and generate school spirit. They have fixed up school buildings, improved libraries, added computers, and initiated new curricula. At Amundsen High School, for example, roughly one fourth of the students who had been failing were told they could return to school only if they earned summer school credit and came with their parents in the fall to sign a performance contract. Meanwhile, a group of high schools has recently joined the Coalition of Essential Schools (CES), discussed in approach three, and James Comer's project (also discussed in approach three) has agreed to work with six elementary schools.

Despite this progress at individual schools, the evaluation of the program so far points to many weaknesses:

- Local school councils lack proper training. In addition, on some councils, the members do not speak the same language.
- The Illinois General Assembly required that a three-year school improvement plan be developed by the local councils. The plans were to outline how each school

would meet the priority goals outlined in the legislation. After the first year, only 180 schools of 600 had turned in the plans by late spring of the current school year (Chicago Reform Review Unit, 1990).

- In another survey, half of 13,000 surveyed elementary teachers said that school reform had no effect on their classrooms. Half also said that their instructional practices would not change with the current school improvement plan. However, seventy-five percent of the teachers said they were highly positive about school reform (Consortium on Chicago School Research, 1992).

Rochester

Rochester may be a more tightly coupled example of SBM because it has attempted to match the increased levels of professional discretion afforded with SBM with accountability requirements. In 1985, the district took stock of the student achievement results and discovered high absentee rates at all grade levels, unacceptably high dropout rates, low academic performance, and large numbers of suspensions. The Urban League presented all this information in a report, where they urged the Rochester community to take ownership of the problem—businesses, unions, social service agencies, churches, governments, colleges, students, and families. Seventy community groups responded to the effort and twelve town meetings were organized. As a result of the meetings, two task forces were formed, one jointly sponsored by the Center for Educational Development and the Rochester Urban League and the other by the Industrial Management Council and the Rochester Chamber of Commerce.

Teachers' unions were designated as the second component in Rochester school reform. To improve student achievement, Rochester needed to improve the teaching profession. One avenue was "professionalism through unionism." The teachers' union needed to be a partner with the district from the very beginning and the two needed to work together to improve the schools. The teachers agreed and signed a new contract in 1987. In all, the Rochester teachers received a forty percent salary increase over the life of the three-year contract, with the possibility of earning nearly $70,000. In addition to a new "professional" salary, the contract sketched the outline of the Career in Teaching Program, home-based guidance, and the School-Based Planning Program.

The Career in Teaching Program was a reconfiguration of the teachers' professional responsibilities in addition to a change in the salary schedule. They added a four-tier professional career ladder to make it possible for teachers to assume enhanced professional responsibility and enjoy greater professional discretion without leaving teaching for administration (Koppich, forthcoming). On the highest level of the ladder, mentor teachers assist and support, offer staff development, serve as adjunct instructors, and integrate curriculum designers. They also work at the Rochester Career in Teaching Program as interventionists to assist tenured teachers who are having difficulty.

Another component of the Rochester reform agenda is school-based planning. This was to be implemented in all schools—not merely as a pilot program as many SBM attempts are. The school-based planning team is comprised of teachers; administrators; classified staff; parents; and students in the high schools. The team is a decision-making body with decisions being consensual. Each team negotiates targets for student performance with the district. The teams follow this process:

- *Assessment*
  To establish a base-line, teams review the district provided data on school and student performance.

- *Goal setting*
  Teams set achievement goals consistent with district priorities and school-identified needs.

- *Implementation*
  Teams develop school plans to accomplish consensual goals.

- *Monitoring and evaluation*
  Teams assess the extent to which goals are realized.

- *Accountability*
  Presentation of the plan and the results to the school community (Rochester City School District, 1989).

In addition to the professional discretion devolved through SBM in the 1987 contract, the 1990 contract features teacher accountability at the centerpiece. This time, the collective bargaining agreement has been utilized as a vehicle for crafting educational policy to determine who is accountable to whom and for what. In addition, it has been used for deciding what students should know and be able to do at reasonable intervals and what are reasonable incentives and disincentives to promoting and enhancing student achievement. A task force was formed, the Task Force on Shared Accountability for Improved Student Learning, to develop a school-based appraisal system. Their task was to ensure responsible and responsive professional practices that are knowledge based and client oriented and to make recommendations to the district and union bargaining team (Koppich, forthcoming). Their report recommended that achievement be gauged on the basis of authentic assessment measures of what students should know and be able to do. The instructional areas to be assessed were communication, numeracy, problem solving, critical and creative thinking, multiculturalism, teamwork, and the use of technology. They also recommended smaller school units, smaller class sizes, extended instructional time for those who require it, greater investment in staff development, and expansion of school-based decision making. To accomplish these goals, they identified shared accountability and individual teacher accountability. The teacher accountability will encompass a professional code of practice based on the criteria articulated by the National Board for the Professionalization of Teaching (Rochester Teacher's Contract, 1990). A new teacher evaluation system will be employed based on a structured professional portfolio. Salary advancement would be determined by the professional practice review committee; they would "affirm a rating" at one of three levels with salary percentage increases attached to each (Koppich, forthcoming).

Another feature of the 1987 teacher contract was home-based guidance. This program was established to provide a home base for each student. Each teacher was assigned to serve as advisor for twenty students during middle school. Twenty minutes were set aside each day for an advisory period. In addition, the teacher would meet with the students' parents, maintain ongoing communication, monitor cognitive growth and student behavior, serve as a resource to help students solve academic and social problems, refer students for additional services, encourage participation in extracurricular activities, and promote attendance. Gaining teacher acceptance for this particular program has been difficult; many teachers complain they were not hired to be social workers (Koppich, forthcoming).

Business has been extensively involved in Rochester reform through the foundation Brainpower. It was designed to engage the business community in active efforts to improve the city's schools. Other things they do are as follows: (1) create job opportunities (they also provide career counseling and job placement as an inducement for improved academic success); (2) develop school-business partnerships, of which there are currently one hundred twenty-five; (3) sponsor corporate workshops that are open to personnel and provide funds to the Rochester Teacher Center; (4) offer adequate corporate consulting resources; and (5) market public education.

Despite the more ambitious effort of the Rochester example as compared to Chicago at this point, they have still only connected SBM (professional discretion) with professional accountability. In other words, much remains to be done to alter the way Rochester classrooms are organized for teaching and learning.

Example Two: Professional Development Schools

Dade County – Dade Academy for the Teaching Arts

In Dade County, the professionalization of teaching is viewed as the key to better schools because of the belief that superior teachers are the critical component for high-quality educational programs and improved student achievement (Bureau of Professionalization, 1990; Fiske, 1991; Phillips & Kerchner, forthcoming). Under the umbrella of teacher professionalization, a variety of goals have been outlined by the Bureau of Professionalization: decentralization through school-based/shared planning (SBM), budgeting, and management; collegial control of the profession; and expansion of professional development opportunities (Dade Academy for the Teaching Arts [DATA]), educator responsibility, and paperwork reduction.

SBM began as a pilot of thirty-three schools and now exists in 160. It is intended to enhance the leadership of school-site administrators and promote the empowerment of teachers to make the school a more satisfying workplace and productive learning environment. The school-level, "bottom-up" strategy thus makes the school, rather than the district as a whole, the focus of change and the point of intervention for organizational renewal (Cistone, Fernandez, & Tornillo, 1989). With SBM, the schools have a decision-making cadre of five to twelve members. This cadre is supported by a system of ancillary staff committees which tend to draw additional staff members into the process (Gomez, 1989). The cadre is responsible for curricular as well as resource decisions. In addition, the schools are allowed to apply for waivers from regulations to remove the bureaucratic constraints from innovation. Waivers have been granted only if the school can show a relationship between the plan and student outcomes. Through SBM, teachers and principals are redesigning their schools—to create a restructured school day, smaller classes, and new teaching positions/functions.

DATA is a second component of reform movement in Dade County, also under the auspices of the Bureau of Professionalization. As mentioned in the text of this paper, DATA is an academy for teacher sabbaticals where teachers can receive training and conduct research to improve their schools. Other reforms occur simultaneously with those under the Bureau of Professionalization, including the Partnerships in Education, a joint effort of the Urban League of Miami, Dade County Public Schools, United Teachers of Dade, and the Miami-Dade College/Wolfson Foundation; the Satellite Learning Centers, schools located in local businesses to serve the needs of the employees' children (taught and administered by Dade County teachers); and the Saturn School's Project, teacher designed and implemented innovative schools (specific examples are featured in approach three, schools of choice). In addition, many schools in Dade County are members of CES (R. Collins, 1991).

According to an evaluation report by the Citizens for Better Schools, the Dade County professionalization/restructuring efforts have been successfully promoting teacher professionalism and job satisfaction but so far have done little to improve academic achievement of the students or the accountability of the school system. As noted in the evaluation, the primary thrust of SBM was the professionalization of teaching by involving teachers in the decision-making process at the individual school level and by collaborating on goal-setting at the school level (Gonzales et al., 1989). It is difficult to know why student achievement has not improved. Perhaps teacher professionalization has not been adequately tied to learner outcomes. Maybe the impact cannot be adequately assessed through standardized tests or it is merely too soon for evaluation. Does this tentatively prove that increases in professionalization are a less than sure guarantee for increased student outcomes? As with the Rochester example, it is difficult to predict which reform is responsible for what. What role does salary, SBM, or DATA play? Despite this measurement problem, many feel hard pressed to understand how professionalism will ever affect achievement.

Pittsburgh – Schenley Teacher Center

In Pittsburgh, the Schenley Teacher Center exists within a much different reform environment and, for this reason, may have a different impact. The Schenley Teacher Center is part of the district superintendent's guaranteed three-part change model. The components of the model appear very similar to those of the Bureau of Professionalization: Schenley Teacher Center; a student performance monitoring system, Monitoring Achievement in Pittsburgh (MAP)—a system of standardized tests linked to the district curriculum and designed to give teachers feedback five times a year; and school-site management.

For goal two, a group of administrators, teachers, and curriculum experts worked on objectives in each subject and each grade, synthesizing them into a list of twenty objectives. Teachers were then instructed to spend a minimum of sixty percent of their time on those objectives. The district developed tests (MAP) that are given several times a year for diagnostic purposes. The results are reported to the teachers, parents, and community. This description is the reason Pittsburgh is known for being a data-driven reform, bound by uniform curriculum and evaluation.

Like Dade, the Pittsburgh union contract was used to record the teacher role changes. Part of the union agreement was the development of district-level steering committees; school-based instructional cabinets (representing power sharing through collaborative decision making); the job of instructional-teacher leader, which has responsibilities for representing teachers in building decisions and monitoring the performance of teachers; and time for teacher interaction (Kerchner, forthcoming).

Kentucky – Gheens Academy

Gheens Academy in Louisville is quite different from DATA and Schenley because it is not just a refuge for teacher sabbaticals. As an ongoing training center that teachers and administrators can use at their discretion, it has the potential to be even more central to the entire reform movement. Its stated goals are to provide leadership for the restructuring of schools (defined as places that are learning-focused and success-oriented); to provide technical assistance, training, support, and programming aimed at the professional development of teachers and administrators; and to serve as a focal point for the movement in Jefferson County, guiding the way to a national leadership position in developing strategies for maintaining a high quality workforce in public schools (Schlecty, 1990).

Academy (1991) is the vehicle for inventing excellent schools rather than simply educating teachers about promising teaching practices. This infrastructure is somewhat symbolic because no school has ever been ordered to innovate nor is any curriculum or common teaching format mandated at Gheens.

The Gheens Academy sponsors many different programs. On a typical day, the following eight programs are offered: a union-sponsored classroom management session; a University of Louisville professor meeting with teacher action research projects; a classified personnel seminar on "How To Deal with Difficult People"; Spanish and German teachers planning a joint project with the Goethe Institute; Leadership Institute for High School Chairpersons; writing seminars for a ninth-grade writing network using computers in the primary grades; learning choice schools; and twelve visitors from the Chicago public schools. Gheens also houses other programs such as shared decision making, performance-based assessment, group processing skills, portfolio support group, countywide CES networking, Grant Wiggins assessment workshops, and participative management pilot programs (which offer on-site technical assistance and course and network sessions).

Gheens also coordinates the district focus of "student as worker/authentic assessment" by working with teams of teachers and consultants who coach teachers. The teachers encourage their colleagues through implementation by sharing articles, classroom observation, and reflection time. Many schools are also piloting efforts in performance assessment and curriculum resources. As the activities at the academy imply, Gheens is not the only reform in the county; however, as a professional development center, it is the center of the Kentucky reform agenda.

On a more practical level, the major drive behind the changes in Kentucky is the 1990 Supreme Court decision ruling that the system was unconstitutional because of inequitable spending. Other states such as Texas and New Jersey have also been handed such rulings, yet the demands for Kentucky schools extend beyond merely revamping the financial structure. To comply with the Supreme Court decision, the state legislature passed a measure in 1990 that required the restructuring of the State Department of Education and the 176 districts in the next five years. A new sales and business tax created $1.3 billion for the first two years of the plan (Celis, 1990).

The Kentucky Education Reform Act (KERA) is a plan based on many beliefs. First, the focus of school reform should be on student success, community collaboration, and employee efficacy. Student success is best supported through a restructured environment in which learning is an active and relevant process. Public education is best served through a spirit of community collaboration and employee efficacy, based on professionalism exhibited by all school and district staff. More specifically, the goals of the 1990 Kentucky legislation are as follows:

- To ensure student success, a restructured environment will promote academic growth with measurable outcomes. To meet the demands of the information age, we must change the view of learning as isolated, individualistic, and competitive acts.

- To ensure student success, school and district programs will reflect input from parents, staff, and the community.

- To ensure student success, all facets of the community will be included in the districts' efforts to plan and implement the programs mandated in HB940.

- To ensure student success, the school/classroom environment will promote positive student behavior, building student self-esteem and regular attendance on the part of all.

- To ensure student success, results-oriented instructional, managerial, budgetary, and accountability policies and practices will be implemented to contribute to the restructuring of schools and classrooms. It is a district belief that opportunities for student success can be greatly enhanced by ensuring a culture of collaboration in making decisions regarding the school environment and instructional programs.

Furthermore, Kentucky will have the first statewide performance-based assessment system, even more comprehensive than efforts in Vermont, Connecticut, and California. Eventually, it will be used as a method of accountability to pinpoint schools' performance levels. High performing schools will be rewarded. Schools that perform below the standards, "schools in crisis," will have the staff placed on probation. The students may then elect to transfer while distinguished educators are brought in to assist the "school in crisis" (Kentucky Department of Education, 1990).

In KERA's first year of implementation, the only mandate was schooling for all four year olds. Schools were given the option to implement SBM, and money was available for the creation of new programs. In the second year, at least one school in each of the 176 districts were required to participate in SBM, and some districts were required to begin ungraded classrooms for K-3. In addition, a state committee was required to establish new teacher training and certification awards (Celis, 1991). Gheens Academy is the place where teachers and administrators go to learn how to make all these changes possible as well as to create their own solutions.

Appendix C
CURRICULAR AND TEACHING REFORM

Example One: Curricular Integration Efforts

Fogarty's Model Two: The Connected Model

There are great changes being made in science education in terms of what and how students learn science. The most visible efforts are the American Association for the Advancement of Science (AAAS) Project 2061 and the National Science Teachers Association (NSTA) Scope, Sequence, and Coordination (SSC) project. In both efforts, there are three main concepts around which science curriculum and instruction are being organized: (1) selecting a small number of concepts to learn in-depth, under the assumption that less is more; (2) hands-on instruction that integrates science concepts through authentic experience; and (3) curriculum restructuring so that discipline-based content is delivered in parallel streams over several years. Clearly, the constructivist perspective has influenced the direction of science education. In addition, both projects have common ideas with California's state framework, which calls for the teaching of science content through integrated science themes.

Despite three common themes, there are some distinctions between the two science projects. Project 2061 began seven years ago in response to the growing alarm about the achievement of American students in math and science. AAAS responded with a multiyear, three-phase project centered on the understanding required of a scientifically literate citizen. This is not an add-on reform strategy centered on quick fixes but a reorganization at every level of the science education world, including curriculum design by educators in the classroom.

In phase one, the first three years have been spent designing goals for science education that have been published in *Project 2061: Science for All Americans* (AAAS, 1989). This book describes what every student should know and be able to do in science. It establishes a working definition of scientific literacy "by spelling out the knowledge, skills, and attitudes, all students should acquire as a consequence of their total school experience for kindergarten through high school" (AAAS, 1989). The document also provides content for K-12 science education. Phase two has been devoted to the creation of curriculum models in line with the principles developed in phase one. They have now entered the second tier of designing curriculum models in six sites around the country to be tested in 1994. The models are not curriculum frameworks but examples, or tools for guidance, on the integration of the three subjects. The models are designed to reflect the "new" science—a marriage of math, science, technology, and social sciences, as it occurs in the real world and is not segmented by specialty. As the Coalition of Essential Schools (CES) advocates, the models are being designed with an emphasis on in-depth study of the curriculum and not superficial coverage—scientific inquiry, as opposed to memorization, is another focus.

Six sites around the country are working on the designs. For the past three years, interdisciplinary teams of elementary, middle, and high school teachers; principals; and curriculum specialists have been breaking down the essential elements of science literacy in order to incorporate them into radically innovative K-12 curriculum (West, 1992c). In making their models, sites were asked to ignore current constraints. As a consequence, the San Diego site has developed a vision where students would have access to fully equipped laboratory facilities in their schools to conduct their own scientific inquiries. Students eventually spend several weeks in more sophisticated regional resource centers researching problems of their particular interest.

The models from the site teams have now been distilled into four approaches. They include a model that emphasizes "how the world works" that focuses on explaining natural phenomena; a "design" model that focuses on engineering solutions to real world problems; an interdisciplinary model on "human concerns" such as the environment; and an "inquiry-based" model that emphasizes science as a way of knowing (West, 1992a).

The third phase is expected to last a decade or more. Groups involved with educational reform will use the resources of phase one and two to move the nation toward science literacy. The AAAS expects that Project 2061 benchmarks will influence the national standards movement. Also, like most other major reforms in this section, there will be an emphasis on detracking to provide a common core curriculum for all.

The NSTA's SSC project being tested in school districts in California, Iowa, North Carolina, Texas, Puerto Rico, and Alaska is dedicated to integrating science courses in order to eliminate the layer cake curriculum currently used with earth sciences, biology, chemistry, and physics separated. With the SSC project, all courses for grades seven through twelve will be integrated with themes common to all sciences. This project emphasizes learning through direct experience first then introduces more abstract concepts, terminology, symbols, and equations. This may be the science equivalent of a whole language approach (language taught through literature as opposed to the rote memorization of grammar or phonics). Furthermore, SSC (like Project 2061) also recommends fewer topics be taught at greater depth and emphasizes student-centered learning strategies through direct experience. SSC has just published *The Content Core: A Guide for Curriculum Designers*, an exhaustive guide to curriculum reform. It is not curriculum itself, but, rather, an organizational document that provides a framework for teaching science according to the tenets of SSC. The work is divided into chapters that provide strategies for implementation of the NSTA approach as well as a section on frameworks for teaching biology, chemistry, earth, space science, and physics. The document recommends that schools implementing the content core need not necessarily supplant existing curriculum in implementing the frameworks. The document serves as a guide to those individuals committed to restructuring their educational delivery system and has the flexibility to be hybridized with the current curricula (West, 1992b).

Los Angeles, one of the SSC implementation sites, has changed its science program to create a ninth-grade integrated science course. Students rotate through short sessions on each science discipline taught by different teachers. The teachers coordinate lessons and seem to enjoy it a great deal more. This same approach is being implemented at John and Sala Burton High School in San Francisco and Tamalpias High School in Marin County (Sachse, 1990).

Tamalpias is in the process of planning a two-year integrated science curriculum that will be required of all students without tracking. The course will be laboratory-based, using a thematic approach. Gathering data and interpretation will be emphasized as well as individual research and presentation skills. The skills will be developed while learning the major concepts in biology and earth science as well as important introductory concepts of chemistry and physics. Here are some examples of integrated themes:

- *Energy*
  Heat, light, sound, electricity, kinetic and potential energy, volcanic eruptions, biochemical reactions, earthquakes, wind, precipitation, metabolism, growth, and development

- *Evolution*
  Plate tectonics, genetics, environmental issues (greenhouse effects, acid rain), adaptation, biochemistry, and ecology
- *Stability*
  Equilibrium, homeostasis, reproducibility of scientific research, ecosystem dynamics, and mechanics (rotational)

The Tamalpias District experiment will use portfolio assessment that will include student papers on a science theme, lab experiments, interpretations of conflicting data, oral presentations, and exams (Mt. Tamalpias Union High School District, 1992).

The SSC approach is also being implemented at Littleton High School in Colorado where the whole school has been redesigned around performance-based exit outcomes for graduation (Littleton High School, 1991). Integrated science is one of the new exit outcomes. As with Tamalpias, Littleton High School integrates the first two years of science education. The course focuses on similar themes of change, interaction, energy, and patterns. Littleton students are required to conduct a field study of an area that includes an examination of a living organism and abiotic factors. Students must also spend three weeks on a technology unit such as robotics, lasers, or hydraulics. During the second year of integrated science, the students continue with the same four themes but with more difficult concepts and content. The culminating activity (which counts as part of their exit science requirement for graduation) is a self-directed experiment where the students must design, implement, interpret, and analyze their experiment (Brunkshorst, 1991).

For teachers, there are several internal and external obstacles they must confront in implementing either of these two projects. They must create a classroom where students can interact and be actively engaged with things, other students, and adults. Dependence on drill and practice must be reduced because it leaves little room for student construction of ideas and in-depth understanding of the content or for invention and discovery (Resnick, 1992). Classroom changes in turn depend on redefinitions of teacher roles and relationships. In terms of external barriers, there are a number of structural barriers such as current teacher certification, conflicts with scheduling practices, and the organization of textbooks—let alone the lack of time to work together to get changes off the ground.

The National Science Foundation (NSF) is sponsoring the Statewide Systemic Initiative that works with school districts on the constraints that make science reform difficult. Under the terms of the initiative launched last year, policymakers in ten states have signed cooperative agreements with NSF that grant them wide latitude to craft long-range, local reform strategies. Participating states are working on strategies such as integration of science and math from kindergarten through the college level (Blumenstyk, 1991). Florida is using the grant money to redesign how science is taught in K-6. Iowa, a state that was not even awarded a grant, is proceeding with the work they completed for the grant process. The cooperation the application process engendered among various education, policy-making, and business entities in the state made the program one of the best things that has happened in math and science reform (West, 1992b).

Fogarty's Model Eight: The Integrated Model

Integrated Studies at Drake High School

The Integrated Studies Program at Drake High School, a school-within-a-school, is a good example of this model. Students meet for a three-period block of integrated instruction—English, math, and science and technology. For example, the freshmen, in studying Ray Bradbury's *Dandelion Wine*, used animation software to design "happiness machines," employing levers, pulleys, ramps, and other principles of physical science. In another project, they wrote plays that focused on some aspect of the environment. After critiques and rewrites, the students performed the plays publicly. The students also developed a holistic scoring framework to assess their plays and portfolios.

Integrated Studies, in addition to its focus on interdisciplinary instruction, has an obvious focus on performance-based learning and group work, with emphasis on habits of mind. In addition, there is evidence of an occupational focus. Nowhere might this be truer than in the two thematic blocks that will be added to the program next year—pre-engineering and communication arts.

The pre-engineering block is designed to expose students to the various branches of engineering; to real engineering problems; and in the process, to the basic skills needed to succeed in an engineering or technical major and/or job. In this upper division block, students will take physics, computer applications (AutoCAD and programming), sculpture, drafting, electronics, trigonometry, pre-engineering, and a one semester internship (Sir Francis Drake High School, 1992a).

The communication arts block addition will be a four hour block for upper division students after completion of the core curriculum. It will integrate U.S. history, English, physiology, theater, applied math or technology, and physical education. In addition, students will have the experience of running their own performing arts company. This program will be coordinated with the College of Marin to create an articulated Tech Prep program (Sir Francis Drake High School, 1992b).

Teachers must take on many new roles to run the Integrated Studies Program. In addition to teaching, they must work on project development, public relations, management and admissions, visitor requests and events, recruitment, the computer lab, the Integrated Studies parent advisory committee, graphics and print coordination, and the development of internships and business partnerships. Each teacher is responsible for managing one or more of these areas. Teachers also oversee student leadership in the development of projects in the above named areas and the student advisory to the program. The Integrated Studies staff meets weekly for five hours to both plan and conduct business. The staff also participates in training for the use of assessment tools and computer network management.

In its second year of implementation, Integrated Studies has had many struggles. For the teachers, it has been difficult to work together and get along. Because the teachers were not working well together, the principal "cleaned house" by setting up a hierarchical management structure within Integrated Studies. To end the struggle for power among them, the teachers were given clearly defined roles and a leader was appointed. Teachers are also finding it difficult to get beyond the current school culture dominated by student passivity. While this program emphasizes active, project-centered instruction in addition to integration, the students are not used to being held accountable. In addition, the students lack the ability to let go of their personal problems long enough to engage in learning. Perhaps this is the trade-off of creating a personal, contextually meaningful learning environment—students feel comfortable in this family-like setting and know that they will be treated as whole human beings and not just students, which in this experiment, leads to more "encounter sessions" than content.

Foxfire

Eliot Wigginton's Foxfire approach might also fit into this category of integration, although the integration occurs within one classroom, so it is less systematic than Integrated Studies. Although it has an oral history/cultural anthropology perspective, the content focuses heavily on the world of work in his specific community (Rabun Gap, Georgia). This project is best known for the Foxfire books, a series for which his students publish a volume every year.

The Foxfire project implements several basic principles of teaching and learning: (1) all the work teachers and students do together must flow from student desires and concerns; (2) the role of teacher must be that of collaborator, team leader, and guide; (3) the academic integrity of the work must be absolutely clear; (4) the work is characterized by student action rather than passive receipt of the processed information; (5) there is an emphasis on peer teaching, small group work, and team work; (6) connections between the classroom work, surrounding communities, and the real world outside the classroom must be clear; (7) there must be an audience beyond the teacher for student work; (8) as the year progresses, new activities should spiral gracefully out of the old; and (9) the world of aesthetic experience must be acknowledged (Foxfire Fund, 1990). These basic principles are similar to the ideas of John Dewey, the cognitive science approach to teaching, and CES.

Foxfire teachers facilitate curricular integration through projects such as the long-standing student magazine that incorporates English with history and sometimes vocational skills. But there are also Foxfire projects in science, math, and English. For example, one class created a nature trail identification booklet for the local area. Another studied the economical and environmental impact a local lake has had on the area. The students constructed a magazine booklet for the community containing interviews, pictures, and information. Another class in health occupations attempted to educate the community to the needs of the homeless by conducting awareness programs and projects (Foxfire Fund, 1989).

Foxfire also has a teacher network to train and support teachers in the Foxfire principles. (One such example, the Puget Sound Consortium, was highlighted in the section on teacher professionalism). The network provides opportunities to use professional discretion, to work with colleagues, and to build a professional network.

Community Service

A third example is curricular integration through community service projects. Service learning is based on the idea of John Dewey that schools should be laboratories of democratic learning, closely linked to community needs. Like many other ideas of Dewey, service learning has been rediscovered many times during this century. Most recently it has been recommended by Goodlad, Wigginton, the Education Commission of the States (ECS), Ernest Boyer, the Carnegie Report, and a report by the William T. Grant Foundation. Advocates argue that youth community service provides the opportunity to reconnect youth and instill them with a sense of purpose, reasons to remain in school, and the desire to learn (Nathan & Kielsmeier, 1991). They also argue that service learning facilitates holistic learning, enhances motivation to learn, recontextualizes the learning environment, and reshapes the teacher-learner relationship. Students can become self-directed learners and through a sense of ownership and genuine responsibility assume active roles in setting objectives and monitoring and evaluating their own learning (Cairn & Kielsmeier, 1991).

Service learning has been discussed and implemented in many different ways around the country. On the national level, policy has been legislated to fund four major programs ranging from school age to youth service corps programs. At the state level, many states have passed legislation requiring schools to offer formal youth service programs. In Minnesota, for example, schools are encouraged to develop community service programs. A 1989 State Board of Education rule requires all schools to provide opportunities for students to participate in youth service and to integrate youth service into the curriculum. Approximately twenty-seven percent of all schools have some sort of community service programs, which for some is a graduation requirement (Lewis, 1988).

Schools are integrating service in a variety of ways, again ranging from less ambitious to more comprehensive models: service clubs or cocurricular programs, volunteer clearinghouse, community service credit, service projects within the schools, individual and interdisciplinary classroom projects, individual projects that are extensions of existing courses, community service classes, and service integrated into the curriculum as a school-wide focus or theme.

Community service as integrated with the curriculum is the only type which fits into this category of integration. Perhaps because it is the most comprehensive approach, it is also the rarest. Community service integrated with the curriculum infuses the lab concept—hands-on experience—into all aspects of the school's curriculum. Service infused into the classroom turns the classroom into an experiential learning environment. In many ways, this is similar to all the other reforms which advocate active learning, personal meaning, and reflection. Kate McPherson, director of the Washington State program, claims that community service helps to engage students and make school meaningful.

The most ambitious efforts fit into the middle of the spectrum in terms of the level and degree of integration. There appears to be some interdisciplinary teaching like Foxfire and situations where the integration is immersed within the learner. Most often, different disciplines pick unique ways to infuse community service into the curriculum. In this way, everyone in the school is participating. At the same time, it may not be like a magnet school where everyone has the same focus. Service learning also provides an introduction to the world of work. Service learning frees the school from the traditional schedule to provide a more flexible one, conducive to more student meaning-making. Also with the infusion of community service, the integration across disciplines is not just across random themes but across themes that mean something (McPherson, 1991).

Central Park East Secondary School (1991) uses service as one of its fourteen student portfolio requirements for graduation. Students are required to spend one-half day a week at their community service sites. Teachers remain at the school site and use the time to work on the interdisciplinary curriculum.

Schools in Philadelphia are also integrating service into the curriculum as part of their statewide community service efforts, PennSERVE. For example,

- an oral history class published a 160-page book on the history of Philadelphia's Tacony community, presented their ideas to community groups, and recruited an advisory board;

- one teacher and her students developed an outstanding horticulture/therapy program. They provide intergenerational services to thirteen hospitals and nursing programs;

- another teacher has accounting students provide a tax preparation service to the blind and elderly, while another has her business students writing résumés, typing letters, and preparing business forms for the community;
- middle schoolers saved their town $119,500 while helping to solve sewerage problems; and
- high school students conducted a needs assessment of their county and determined that daycare was a major need. They then established a daycare center that is still operating.

In Washington, two high school industrial arts classes were able to help the community by building a wheelchair ramp and a special wheelchair. Both of these projects were designed by the students. They participated at all levels of the project from design to gathering resources and actual construction (Cairn & Kielsmeier, 1991).

For students, service learning means they are given an audience beyond the classroom for their work. According to the evaluation of the Pennsylvania program, PennSERVE has changed the way teachers view their classrooms and the way students learn. With service learning, there is less memorization and book learning, more doing and remembering; the active participation of the learner is increased. Furthermore, both the teachers and the students have to become more actively involved with the community (Briscoe, 1991).

It is not clear how the curriculum changes beyond this focus in service learning. There is no evidence in existing projects that points to great pedagogical changes in other classrooms. The value may be a change in culture and purpose for the student. In addition, all studies of the outcomes of service learning point to desirable individual characteristics or signs of social and psychological development. The most positive academic outcomes reported so far are associated with community service projects that require tutoring. Still, it is hypothesized that service learning will improve basic academic skills, higher level thinking skills, skills in learning from experience, motivation to learn, retention of knowledge, insight, judgment, and understanding (Conrad & Hedin, 1989).

The development of community service projects is an interesting model that could be added to the list of vocational/academic integration models. Service projects require students to read and write beyond the needs of the service project. In a vocational class, this could serve as the basis for integration. Also, by moving outside of the classroom, students are exposed to more facets of a complete project and are exposed to the future. In addition, learning from community service projects has a pedagogical focus aligned with the CES and Foxfire approaches.

Example Two: Comprehensive Curricular Reform

Central Park East Secondary School, a Coalition of Essential Schools School

The fundamental aim of Central Park East Secondary School (CPESS) is to teach students to use their minds well and prepare them to live productive, socially useful, and personally satisfying lives. Five "habits of mind" are stressed: (1) critically examine evidence; (2) be able to see the world through multiple view points; (3) make connections and see patterns; (4) imagine alternatives; and (5) ask, "What difference does it make?" The courses revolve around the "essential questions" or core questions of the disciplines. The mission of the school is to graduate its students only when they have demonstrated an appropriate level of mastery in each area.

This school houses students in grades seven through twelve. During their first four years, students take a common core that is age blocked (seventh and eighth grades together, ninth and tenth grades together). Students in these grades have three classes per day: humanities, science/math, and an advisory period. Current events are connected to all areas of study. In addition, each student must complete a community service project and study a foreign language. Languages are offered before and after school as are electives and physical education.

Teachers teach two, two-hour block classes each day and meet with their small advisory group for one hour each day. In the fifteen member advisory group, the students discuss school and personal concerns. The advisory program also includes a course in family; health and sex education; and contemporary, ethical, and social issues. The advisor coordinates each student's schedule and is responsible for establishing a strong school-home relationship.

One day in a CES ninth-grade humanities class has been described in the following way. To begin with, the students' work for the year has been focused around the "essential question," "What is Justice?" They have worked with law firms, read Harper Lee's *To Kill a Mockingbird*, and studied the American judicial system.

After spending an hour on writing, the students take a five-minute break and return to work in groups. The teacher hands out two actual court cases in which the judge determined bail. Each group gets one case and the teacher directs them to select roles: one prosecuting attorney, one defense attorney, the accused, and the judge. The role of the judge is to determine whether or not the bail might be paid, and if so, how much. As a group, they review the two cases and the circumstances that could influence the judge's decision to post bail or not. The judge for each group then announces his/her decision. The class analyzes the judge's decision in light of criteria the teacher has provided. The class conducts the discussion about the bail decision by themselves. After the discussion the students then work on the other case individually, deciding on bail and defending their responses (Wasley, 1991).

Here is an example of a day in a geometry class in a CES school-within-a-school (only part of the school is a member of CES): The students in CES take four classes together. On this particular day, the students enter the room and get into groups. Each group is working on the design of a space or area of its choice. Some groups are redesigning a room in their home while another works on a weight room for the school. These projects require students to plan the space and create a visual representation of their work to scale. They must include all their computational work, including the budget computations, and produce a written description of their project and its complexities. Prior to this assignment, the teacher gave homework problems designed to refresh them in the skills necessary for the project. The industrial arts teacher has been brought in for this assignment to help the students understand application of mathematical computation (Cushman, 1992).

On another day in the same geometry class, the students were given statements such as "How does the cost of potatoes depend on its weight?" and "Prices are now rising more slowly than at any time during the last five years." As a group, the students had to draw a graphic representation of the statement and they all had to agree on it. Then, each group defended its graph, and as a class they argued until they reached consensus (Cushman, 1992).

At CPESS, students in eleventh and twelfth grades participate in the Senior Institute. The students' primary responsibilities are to complete the fourteen portfolio requirements, which together with a series of traditional exams are the basis for receiving a diploma. Students present their portfolios to a four person graduation committee for evaluation and oral defense.

Prior to admission to the Senior Institute, the student, family, and advisor put together an academic review. The review summarizes the students' strengths and weaknesses and other interests. The review estimates the length of time a student will probably need to meet the requirements for the diploma. In addition to the review, students must have satisfactorily completed all core curriculum, the community services project, and passed the second language and math proficiency exam.

Once admitted to the Senior Institute, students take courses to help them with the completion of their portfolio and senior project. Classes are also offered at local colleges tuition free. Students are required to complete a two semester "great books and ideas" seminar lead by college faculty at a local college. They are also required to fulfill an internship or apprenticeship.

The portfolios reflect cumulative knowledge and skill in each area of study as well as the "habits of mind" and work. The fourteen portfolio areas are as follows: (1) post-graduate plan, (2) autobiography, (3) school and community service internship, (4) ethics and social issues, (5) fine arts, (6) practical skills, (7) media, (8) geography, (9) second language, (10) science and technology, (11) math, (12) history, (13) literature, and (14) physical challenge. The major criteria used by the committee are quality and depth of understanding and the capacity to present convincing evidence of mastery with respect to each particular field (CPESS, 1991).

Another interesting member of CES is Thayer School in Winchester, New Hampshire. In order to be admitted to the school, students must demonstrate mastery in the following: skills involving general knowledge and cultural awareness, skills for critical thinking and problem solving, cooperative learning, communication, decision making, organization and planning, group participation, independent learning, and documentation and evaluation. Once admitted, students are part of a multidisciplinary teaching team for all six years (grades seven through twelve). Thayer also has an apprentice program that offers students the opportunity to explore careers. They must write a résumé and attend a job interview as well as keep a daily journal and complete a semester project utilizing their job skills. They must also take a course called "Life after Thayer." These classes have only eight to ten same-gender students, and students discuss careers, relevant social issues, and practical life skills.

In an evaluation of Thayer by CES, it was concluded that their version of curricular integration requires a certain type of collaboration—a division of labor wherein each teacher retains subject-specific responsibility yet collaborates in order to achieve coherence (similar to Fogarty's model four). This is contrasted with another CES school, Forsyth in New York City, where the integrated teaching has a broader meaning. Their approach involves rethinking how knowledge is perceived, how one talks about it, and how it is made available to students. At Forsyth, knowledge is not compartmentalized but rather emerges from broad topics or issues. Each teacher takes responsibility for all parts of the course content. Despite this difference, both schools share a belief that the use of integration is an evolutionary process; they expect changes in both the process and product as their understanding of integration deepens (Lear, 1991). The following quotations of teachers' praise for CES best illustrate the types of teacher and student role changes that can occur in CES schools and illustrate the cognitive view of learning that is central to CES schools (Cushman, 1990).

> "The kids must carry the ball; they have to dig into the material, and as a discussion gets going, they are more in charge."
>
> "I spend less time grading, more time generating engaging material and far more time diagnosing individual student progress, and watching."
>
> "Students spend far more time working collaboratively."
>
> "I start with a real life problem, and then ask, what would you need to be able to solve this? And then I teach them how."
>
> "We use the text as a resource, rather than as a centerpiece"
>
> "Since we started this program, we rarely have to spend time on classroom management."
>
> "Students find it impossible to blend in to the woodwork here. They must constantly prove how they know what they know."
>
> "My students are becoming more curious, more supportive of one another, more thorough in their work, better able to defend their choices, and more

> willing to tackle stuff they have never heard of before. And these kids belong to the same population of kids I have worked with before!" (Cushman, 1990, pp. 1-6)

From the student's point of view[5]:

> "She has a different approach for every kid. The teachers call to see if you have everything you need, to see how everything is going."
>
> "CES is more personal, more one on one—the teachers know who you are and the work is set up around the students, not around the teacher. I have had the same teachers for three years. I got a lot better grades than I ever did before."
>
> "I used to sleep in my honors classes. As long as I studied for the test I got by fine. An honors class is no guarantee students engage with ideas—in many cases it is even more competitive, more centered around test taking."
>
> "We couldn't sleep in class anymore. We had to stay awake or we would miss something. The coalition classes are centered around activities."
>
> "You don't know you are working harder—you want to."
>
> "A class presentation gives you the chance to show how you interpret the facts."
>
> "I miss the longer time blocks that allowed us to spend more time on a subject, to explore its relation to other areas of knowledge."
>
> "The teachers don't let you just sit back; they don't settle for less because they know you from the first day when you walk in. And the students don't let you either. It is not just the teachers pushing you; it is the students too."
>
> "There is no such thing as a nerd in the Coalition. If you are doing your best and you do well, everybody thinks this is cool."
>
> "They (the teachers) are not trying to lecture or tell you what to think, they are trying to get you to think for yourself, to develop and support your own ideas."
>
> "The best classes forego textbooks in favor of readings and hands-on experiments."
>
> "Coalition teachers expect you to take initiative—you can't just go to class, you have to write and get up in class and make presentations and prepare for life." (Cushman, 1990, pp. 1-6)

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[5] These quotations are from students at Parkway South which is a CES in only the ninth through eleventh grades. The students are seniors who must now go back to a regular high school. For students, of all the nine common principles, personalization seems the most important.